United States. Circuit Court. Eastern District of New York

National Phonograph Company,
versus
Elmer Fletcher.
) In Equity.

RECORD; BRIEF FOR COMPLAINANT
1902

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United States Circuit Court,

EASTERN DISTRICT OF NEW YORK.

IN EQUITY.

NATIONAL PHONOGRAPH COMPANY,
Complainant,

vs.

ELMER FLETCHER,
Defendant.

RECORD.

DYER, EDMONDS & DYER,
Solicitors for Complainant.

SEABURY C. MASTICK,
Solicitor for Defendant.

C. G. Burgoyne, Walker and Centre Streets, N. Y.

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To the Honorable the Judges of the United States Circuit Court for the Eastern District of New York:

National Phonograph Company, a corporation organized and existing under and by virtue of the laws of the State of New Jersey and having its principal place of business at Orange, in the County of Essex and State of New Jersey, brings this its bill of complaint against Elmer Fletcher, a resident of, and having a regular and established place of business in, the Borough of Brooklyn, City of New York, State of New York, and thereupon your orator complains and says: 2

1. That heretofore and before the 5th day of February, 1889, Thomas A. Edison, being then, as now, a resident of Llewellyn Park, in the County of Essex and State of New Jersey, and a citizen of said State, was the original, first and sole inventor of certain new and useful improvements in phonograph reproducers, fully described in the letters patent hereinafter mentioned, and which had not been known or used by others in this country, and which had not been abandoned, nor patented or described in any printed publication in this or any foreign country before his invention thereof, and which were not, prior to his application for letters patent therefor as hereinafter mentioned, in public use or on sale in this country for more than two years. 3 4

2. That the said Edison, being so as aforesaid the first inventor and discoverer of the said improvements, made application in writing to the Commissioner of Patents of the United States for the grant of letters patent therefor, and paid into the Treasury of

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the United States the fees required by law, and then and there fully and in all respects complied with all the necessary conditions and requirements of the statutes of the United States in such case made and provided, and thereupon, after due examination having been made by the Commissioner of Patents as to the novelty and utility of the said invention, as provided by law, the Commissioner of Patent caused to be issued to the said Edison letters
6 patent in due form of law, under the seal of the Patent Office of the United States, signed by the Secretary of the Interior and countersigned by the Commissioner of Patents, and bearing date the 5th day of February, 1889, and numbered 397,280, and that the said letters patent did grant unto the said Edison, and unto his heirs and assigns, for the term of seventeen years from the date thereof, the exclusive right to make, use and vend the said invention throughout the United States and the Territories thereof, as by said letters
7 patent, or a duly authenticated copy thereof in court to be produced, will more fully and at large appear.

3. That heretofore, and before the 17th day of June, 1890, Thomas A. Edison, being then as now a resident of Llewellyn Park, in the County of Essex and State of New Jersey, and a citizen of said State, was the original, first and sole inventor of certain other new and useful improvements in phonograph reproducers, fully described in the letters patent hereinafter men-
8 tioned, and which had not been known or used by others in this country, and which had not been abandoned, nor patented or described in any printed publication in this or any foreign country before his invention thereof, and which were not, prior to his application for letters patent therefor, as hereinafter mentioned, in public use or on sale in this country for more than two years.

4. That the said Edison, being so as aforesaid the first inventor and discoverer of the said improve-

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ments, made application in writing to the Commissioner of Patents of the United States for the grant of letters patent therefor, and paid into the Treasury of the United States the fees required by law, and then and there fully and in all respects complied with all the necessary conditions and requirements of the statutes of the United States in such case made and provided, and thereupon, after due examination having been made by the Commissioner of Patents as to the novelty and utility of the said invention as provided by law, the Commissioner of Patents caused to be issued to the said Edison letters patent in due form of law under the seal of the Patent Office of the United States, signed by the Secretary of the Interior and countersigned by the Commissioner of Patents, and bearing date the 17th day of June, 1890, and numbered 430,278, and that the said letters patent did grant unto said Edison and unto his heirs and assigns, for the term of seventeen years from the date thereof, the exclusive right to make, use and vend the said invention throughout the United States and the Territories thereof, as by said letters patent, or a duly authenticated copy thereof in court to be produced, will more fully and at large appear.

5. That heretofore and before the 18th day of October, 1892, the said Thomas A. Edison, being then as now a resident of Llewellyn Park, in the County of Essex and State of New Jersey, and a citizen of said State, was the original, first and sole inventor of certain other new and useful improvements in phonograph reproducers, fully described in the letters patent hereinafter mentioned, and which had not been known or used by others in this country, and which had not been abandoned, nor patented or described in any printed publication in this or any foreign country before his invention thereof, and which were not, prior to his application for letters patent therefor as hereinafter

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13 mentioned, in public use or on sale in this country for more than two years.

6. That the said Edison, being so as aforesaid the first inventor and discoverer of the said improvements, made application in writing to the Commissioner of Patents of the United States for the grant of letters patent therefor, and paid into the Treasury of the United States the fees required by law, and then and there fully and in all respects complied with all the
14 necessary conditions and requirements of the statutes of the United States in such case made and provided, and thereupon, after due examination having been made by the Commissioner of Patents as to the novelty and utility of the said invention as provided by law, the Commissioner of Patents caused to be issued to the said Edison letters patent in due form of law under the seal of the Patent Office of the United States, signed by the Secretary of the Interior and countersigned by the Commissioner of Patents, and bearing date the
15 18th day of October, 1892, and numbered 484,584; and that the said letters patent did grant unto the said Edison, and unto his heirs and assigns, for the term of seventeen years from the date thereof, the exclusive right to make, use and vend the said invention throughout the United States and the Territories thereof, as by said letters patent, or a duly authenticated copy thereof in court to be produced, will more fully and at large appear.

16 7. That, heretofore and before the commission by the defendant of the acts hereinafter complained of, your orator became, by virtue of mesne assignments in writing duly executed and delivered and recorded in the Patent Office of the United States, vested with the full and entire right, title and interest in and to the said letters patent numbered 397,280, 430,278 and 484,584, and each and every of them, and that it has ever since been and now is possessed of the same.

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8. That the inventions described and claimed in the said several letters patent numbered 397,280, 430,278 and 484,584 are capable of conjoint use in one and the same apparatus, and that in the apparatus herein complained of they are in fact so conjointly used.

9. That your orator is engaged in the manufacture and sale of phonographs and supplies therefor, and that in carrying on its business, it has manufactured and is manufacturing in large quantities devices for 18
reproducing sound vibrations recorded in or upon recording surfaces or phonogram blanks, such devices being known as phonograph reproducers, employing and containing the several inventions described and claimed in and by said several letters patent above named; that your orator has invested and expended large sums of money and has been to great trouble in and about the said several inventions for the purpose of introducing the same and making the same profitable to your orator and to the public; that phonograph re- 19
producers employing and containing the several inventions patented as aforesaid have been in great demand and are of great benefit and advantage to your orator and to the public, and that the public has generally acknowledged and acquiesced in the rights of your orator, and your orator believes that it will realize and receive large gains and profits therefrom if infringement by the said defendant and his confederates shall be prevented.

20

10. Your orator avers, on information and belief, that phonograph or sound reproducing machines heretofore and now being placed upon the market by your orator, and provided with reproducers made under and in accordance with the said several letters patent, have been duly marked with the word "Patented," together with the respective dates of said letters patent as aforesaid; and further, your orator avers, on information and belief, that the defendant was duly notified of the said several letters patent and of the infringement

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21 hereinafter charged, but that he continued after such notice to make and use phonograph reproducers embodying the said several inventions.

11. That the defendant, well knowing the premises and the rights secured to your orator as aforesaid, but contriving to injure it and to deprive it of the benefits and advantages which might and otherwise would accrue unto it from the said several inventions, did, after
22 the grant of said several letters patent and after the acquiring by your orator of its exclusive rights therein and before the commencement of this suit, as your orator is informed and believes, within the Eastern District of New York aforesaid and elsewhere in the United States, without license or allowance and against the will of your orator and in violation of its rights, unlawfully and wrongfully make, use and sell, or cause to be made, used and sold, and is now making, using and selling, or causing to be made, used and
23 sold, phonograph reproducers employing and containing the several inventions set forth in the several letters patent aforesaid, that he still continues so to do, and that he is threatening to continue the aforesaid unlawful acts to a large extent, all in defiance of the rights secured to your orator as aforesaid and to its great and irreparable loss and injury, and by which it has been and still is being deprived of great gains and profits which it might and otherwise would have obtained, but which have been
24 received and enjoyed by the said defendant through his said unlawful acts and doings. And your orator further shows that as to how many phonograph reproducers by the defendant, as aforesaid, unlawfully made or used or sold, and as to the extent of the gains and profits received and enjoyed by him from such unlawful making or using or selling, your orator is ignorant and prays a discovery thereof.

12. That the manufacture, use and sale of phonograph reproducers employing and containing the severa

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inventions set forth in the several letters patent aforesaid by the defendant, and his preparation for and avowed determination to continue the same and his other aforesaid unlawful acts in disregard and defiance of the rights of your orator, have the effect to and do encourage and induce others to venture to infringe said several letters patent.

13. Your orator, therefore, prays that the said defendant Elmer Fletcher aad his servants, agents, attorneys, employees, workmen and confederates, and each and every of them, may be perpetually restrained and enjoined, by the order and injunction of this Honorable Court, from directly or indirectly making, constructing, using, vending, delivering, working, or putting into operation or use, or in any wise counterfeiting or imitating the several inventions of the letters patent aforesaid, or any phonograph reproducers made or operated in accordance therewith or like or similar to those which the defendant has heretofore made, sold, constructed, operated or used, and that the said defendant may be decreed to pay the costs of this suit, and that your orator may have such other and further relief as to this Honorable Court shall seem meet and as shall be agreeable to equity.

14. Your orator further prays that an injunction *pendente lite* be granted, issuing out of and under the seal of this Honorable Court, enjoining and restraining the said defendant and his servants, agents, attorneys, employees, workmen and confederates, and each and every of them, to the same purport, tenor and effect as hereinbefore prayed for with regard to said perpetual injunction.

15. And forasmuch as your orator can have no adequate relief save in this Court, to the end, therefore, that the said defendant may, if he can, show why your orator should not have the relief hereby prayed, and

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may, but not upon oath, an answer under oath being hereby expressly waived, according to his best and utmost knowledge, remembrance, information and belief, full, true, direct and perfect answer make to the premises and to all the several matters hereinbefore stated and charged, as fully and particularly as if the same were here repeated and he especially interrogated as to each and every of said matters, and may be compelled to account for and pay to your
30 orator the profits by him acquired and the damages suffered by your orator from the aforesaid unlawful acts, and that the Court may assess said profits and damages to a sum not exceeding three times the amount thereof.

May it please your Honors to grant unto your orator a writ of subpœna, issuing out of and under the seal of this Honorable Court, directed to the said defendant Elmer Fletcher, command-
31 ing him by a certain day and under a certain penalty to be and appear in this Honorable Court, then and there to answer to the premises and to stand to and abide such order and decree as may be made against him.

And your orator will ever pray.

NATIONAL PHONOGRAPH COMPANY,
by WILLIAM E. GILMORE,
President.

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DYER, EDMONDS & DYER,
Solicitors for Complainant.
RICHD. N. DYER,
Of Counsel for Complainant.

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STATE OF NEW JERSEY, }
County of Essex, } ss.:

WILLIAM E. GILMORE, being duly sworn, deposes and says that he is the president of National Phonograph Company, the complainant named in the foregoing bill of complaint; that he has read the said bill and knows the contents thereof; that the same is true to his own knowledge save as to the matters therein stated to be alleged on information and belief, and as 34
to those matters he believes it to be true; and that he verily believes Thomas A. Edison to be the first, original and sole inventor of the improvements in phonograph reproducers set forth in Letters Patent numbered 397,280, 430,278 and 484,584, referred to in the said bill of complaint.

WILLIAM E. GILMORE.

Subscribed and sworn to before me this 3d day of May, 1901. }

35

A. WESTEE,
Notary Public.

[SEAL.]

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UNITED STATES CIRCUIT COURT,

EASTERN DISTRICT OF NEW YORK.

NATIONAL PHONOGRAPH COMPANY AGAINST 38 ELMER FLETCHER.	In Equity.

The answer of Elmer Fletcher, the defendant, to the bill of complaint of the National Phonograph Company:

Elmer Fletcher, the defendant, now and at all times hereinafter saving and reserving unto himself any and all manner of benefit and advantage of exception or
39 otherwise which can or may be had or taken to the many errors, uncertainties, insufficiencies and other imperfections in the said bill of complaint contained, in answer thereto, or to so much thereof as he is advised it is necessary for him to make answer unto, answering, says:

I. That he is not advised and does not know that before the 5th day of February, 1889, Thomas A. Edison was the original, first and sole inventor of any
40 improvements in phonographic reproducers, except so far as in said bill of complaint stated, nor whether any such reproducers were in public use or on sale for more than two years prior to any date, and leaves the complainant to make such proof thereof as it is advised it is material and necessary.

II. That defendant, further answering, is not advised as to the allegations in the said bill of complaint as to the application for any letters patent or as to the compliance of any application with the con-

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ditions and requirements of the statutes of the United States'; but admits that, on the 5th day of February, 1889, letters patent were issued, numbered 397,280, to said Edison, but, whether issued in compliance with the laws of the United States or in due form, leaves complainant to make such proof as it may be advised is material and necessary.

III. That defendant is not advised, and does not know except as stated by said bill of complaint, that 42
Thomas A. Edison, before the 17th day of June, 1890, made any application for letters patent for phonographic reproducers not in public use or on sale in this country for more than two years before any date, and, therefore, leaves complainant to make such proof thereof as it may be advised is material and necessary.

IV. That defendant, further answering, is not advised as to the allegations in the said bill of complaint as to 43
the application for any letters patent, or as to the compliance of any application with the conditions and requirements of the statutes of the United States; but admits that, on the 17th day of June, 1890, letters patent were issued, numbered 430,278, to said Edison, but, whether issued in compliance with the laws of the United States or in due form, leaves complainant to make such proof as it may be advised is material and necessary..

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V. That defendant is not advised, and does not know, except as stated by said bill of complaint, that Thomas A. Edison, before the 18th day of October, 1892, made any application for letters patent for phonographic reproducers not in public use or on sale in this country for more than two years before any date, and, therefore, leaves complainant to make such proof thereof as it may be advised is material and necessary.

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VI. That defendant, further answering, is not advised as to the allegations in the said bill of complaint as to the application for any letters patent or as to the compliance of any application with the conditions and requirements of the statutes of the United States, but admits that on the 18th day of October, 1892, letters patent were issued, numbered 484,584, to said Edison, but, whether issued in compliance with the laws of the United States or in due form, leaves complainant to
46 make such proof as it may be advised is material and necessary.

VII. That defendant avers that he has no knowledge, save from said bill of complaint, that the complainant, by virtue of any assignments, became vested with the full and entire right, title and interest in and to Letters Patent 397,280, 430,278 and 484,584, and therefore prays that complainant may be required to make strict
47 proof thereof.

VIII. That defendant denies that said Letters Patent 397,280, 430,278 and 484,584 are capable of conjoint use in one and the same apparatus, and that the same have been in fact so conjointly used in any apparatus.

IX. That defendant, further answering, avers that he has no knowledge that the complainant is engaged in the manufacture of phonographic reproducers em-
48 ploying and containing the several inventions described and contained in and by said several letters patent named in said bill of complaint, or that the complainant has invested or expended large sums of money and been to great trouble in and about the several inventions in introducing and in making the same profitable, or that the same have been in great demand and are of great benefit, or that the public has generally acknowledged and acquiesced in any alleged rights under said letters patent, or that the complainant is in a position to realize and receive large gains

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and profits therefrom if any infringement shall be prevented, and asks that complainant may be required to make strict proof thereof.

X. That defendant has no knowledge, save from said bill of complaint, that the reproducers that are made and sold by complainant have been duly marked with the word "Patented," together with the respective dates of the aforesaid letters patent, and prays that complainant may be required to make strict proof thereof; and defendant denies that after any notification by said complainant that he continued to make and use phonographic reproducers embodying the said several inventions contained in said letters patent or any of them.

XI. And defendant denies that, after the granting of the said letters patent, and before the commencement of this suit, he, within the Eastern District of New York, or elsewhere, unlawfully or wrongfully made, used or sold, or caused to be made, used or sold, or is now making, using or selliug, or causing to be made, used or sold, phonographic reproducers employing and containing the several inventions set forth in the several letters patent aforesaid, in defiance of any right of the complainant as secured by said letters patent, or to any loss or injury of said complainant; but, on the contrary, the defendant affirms that he has placed upon the market certain phonographic reproducers, which reproducers were purchased by the defendant from the complainant or its duly authorized agents, licensees or from parties who had obtained the same from the complainant; and that so far as the reproducers placed upon the market by the defendant are concerned, which embody in any way any construction devised by the complainant or its agents or employees, or to which it is in any way entitled, said reproducers so embodying any such improvements were made by said complainant, its agents

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53 or licensees, and sold by said complainant, its agents or licensees, in the open market for public use, and were thus obtained by defendant. That defendant, after such purchase of reproducers, added thereto certain improvements and constructions of his own invention and device, which greatly improved the said reproducers, and thereupon sold the same as thus improved; and that, so far as the additional features or changes in said reproducers by defendant are con-
54 cerned, they are in no way embodied in or constitute any infringement of any of the claims of the aforesaid letters patent cited in said bill of complaint.

XII. That defendant denies that the aforesaid manufacture, use and sale of said article by him are in disregard or defiance of any right of the complainant, or that such manufacture, use and sale have had any effect to encourage or induce others to infringe said several letters patent.

55

All which foregoing statements and defenses defendant is willing to offer, maintain and prove as this Honorable Court shall direct, without admitting as true any of the matters alleged or charged in said bill of complaint not herein specifically answered, confessed, traversed or denied, and prays to be hence dismissed with costs and charges in this behalf most wrongfully sustained.

ELMER FLETCHER.

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CIRCUIT COURT OF THE UNITED STATES,

EASTERN DISTRICT OF NEW YORK.

NATIONAL PHONOGRAPH COMPANY vs. ELMER FLETCHER.	In Equity.

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The replication of National Phonograph Company, complainant, to the answer of Elmer Fletcher, defendant :

This repliant saving and reserving unto itself, now and at all times hereafter, all and all manner of benefit and advantage of exception which may be had or taken to the manifold insufficiencies of the said answer, for replication thereunto says that it will aver, maintain and prove its said bill of complaint to be true, certain and sufficient in law to be answered unto, and that the said answer of the said defendant is uncertain, untrue and insufficient to be replied unto by this repliant. Without this that any other matter or thing whatsoever in the said answer contained, material or effectual in the law to be replied unto, and not herein and hereby well and sufficiently replied unto, confessed or avoided, traversed or denied, is true. All which matters and things this repliant will be ready to aver, maintain and prove as this Honorable Court shall direct, and humbly prays as in and by its said bill it has already prayed.

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DYER, EDMONDS & DYER,
Complainant's Solicitors.

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UNITED STATES CIRCUIT COURT,

EASTERN DISTRICT OF NEW YORK.

NATIONAL PHONOGRAPH COMPANY

62 vs.

ELMER FLETCHER.

Testimony on behalf of complainant, taken before B. LINCOLN BENEDICT, ESQ., Special Examiner, under the 67th Rule in Equity as amended, on the 9th day of October, 1901.

63 Present:

MR. RICHARD N. DYER, for complainant.
MR. SEABURY C. MASTICK, for defendant.

ELMER FLETCHER, being duly sworn, testifies as follows:

DIRECT EXAMINATION BY MR. DYER:

1 Q. What is your name, age, residence and occupation?

64 A. Elmer Fletcher; 45 years old; 118 Putnam avenue, Brooklyn; manufacturer of phonograph improvements.

2 Q. You are the defendant and come here in response to a subpœna?

A. Yes.

3 Q. I show you a device; do you recognize it?

A. Parts of it I do.

4 Q. It is a phonograph reproducer, is it not?

A. Yes.

5 Q. Is it not one of your manufacture?

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A. I don't manufacture reproducers.

6 Q. Is this not one of the phonograph reproducers, or similar in all respects to phonograph reproducers referred to by you in paragraph XI. of the answer as having been purchased by you, and then changed by adding thereto certain improvements and constructions of your own invention, and then sold by you as thus improved?

A. I never purchased a reproducer, neither did I sell one.

66

7 Q. In view of your last answer, please explain paragraph XI. of the answer, and particularly the allegations beginning with the words "but on the contrary" and running through to the end of the paragraph?

A. As I understand this, it means that these reproducers were purchased on the open market of the complainant, and, in fact, they were by parties who purchased phonographs. The reproducers were then sent to me to have my improvement applied, which was done, and the reproducer was returned to the parties, and the improvement was sold by me, not the reproducer.

67

8 Q. This phonograph reproducer is in fact one of the reproducers so improved by you, as stated in your last answer, or similar in all respects?

A. It is similar. I should say it was similar in all respects.

9 Q. And this is one of the devices, or phonograph reproducers, referred to by you in Paragraph XI. of the answer, beginning with the words "but on the contrary," and extending to the end of that paragraph?

68

A. It is similar to the devices referred to.

10 Q. Similar in all respects?

A. Yes, sir.

11 Q. In fact, there is nothing about that reproducer which warrants you in thinking that it is not one of your identical devices?

Question objected to by counsel for defendant on the ground that it assumes the fact that

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the whole device is defendant's, whereas witness has not so stated.

A. It is equipped with my improvement.

12 Q. Have you any reason to think, from the inspection of the work, that your improvement, as you see fit to call it, was not actually added to this reproducer by you or in your shop?

A. No, sir.

70

The phonograph reproducer shown the witness is offered in evidence by complainant's counsel, and is marked "Complainant's Exhibit Fletcher Reproducer No. 1."

13 Q. I show you another phonograph reproducer; do you recognize the type of this instrument?

A. Yes, sir.

14 Q. What is its type?

71 A. It is known as the Edison reproducer.

Reproducer last shown witness is offered in evidence by complainant's counsel, and is marked "Complainant's Exhibit Edison Reproducer No. 1."

15 Q. Is the "Edison Reproducer No. 1" the kind of reproducer which was reconstructed by you to make the Fletcher Reproducer No. 1?

72 A. The reproducer just exhibited, "Complainant's Exhibit No. 1," is the kind of a reproducer to which I applied my improvement.

16 Q. In applying your improvement to such a device as "Edison Reproducer No. 1," in order to make such a device as "Fletcher Reproducer No. 1," please state what parts of the "Edison Reproducer No. 1" you omitted, and what substitute or additional parts you added?

A. In applying my improvement to the "Edison Reproducer," I place a hinge on the weight, substituting the hinge which was originally attached to the

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weight; I discard the present sapphire arm, and I cut a slot in the weight; on the bottom of the weight I cut a groove in which I place bushings; these bushings are held in place by screws and washers. I place in this slot my sapphire arm, which has a double-pointed pin running through one end of it, these points are held in position by the bushings which are placed in the groove. I discard the cross-head of the Edison reproducer and substitute my own. I discard the tube plate and substitute my own. I withdraw the sapphire, 74
or reproducing point, from the "Edison Reproducer" sapphire arm, and I replace this same sapphire, or the reproducing point, in the sapphire arm which I substitute.

17 Q. The weight you refer to is the hinged disk on which the lever or arm carrying the sapphire point is pivoted, is it not?

A. Yes, sir.

18 Q. The weight which is in "Fletcher Reproducer No. 1" is not formed from the weight which you found 75
in the other reproducer, is it?

A. No, sir.

19 Q. So you discarded the weight of the "Edison Reproducer" and substituted a weight of your own make, in making the "Fletcher Reproducer No. 1"?

A. In that particular case that evidently was done.

20 Q. Apparently, also, you substituted for the screw which limits the movement of the weight in the "Edison Reproducer," a different screw in the "Fletcher Reproducer"? 76

A. Yes, sir.

21 Q. You also, as I understand it, omitted the lever or arm, which carried the sapphire point in the "Edison Reproducer," and substituted a lever or arm of your own make?

A. Yes, sir; that was so stated in my previous answer.

22 Q. Are you quite certain that the small jewel point or sapphire in the "Fletcher Reproducer No. 1" was taken out of an "Edison Reproducer"?

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A. When they came to me as your Exhibit No. 1 of the Edison reproducer, I am positive that they were taken from the Edison reproducer.

23 Q. In making up these Fletcher reproducers, have you in all instances used jewel or sapphire points taken from Edison reproducers?

A. I always used the jewels that came with the reproducers.

24 Q. Have you never purchased some of these
78 points from some other maker and applied them to your reproducer?

A. I never purchased reproducers or parts of reproducers, or the sapphires used in applying my improvements.

25 Q. Are you quite certain you never took a sapphire point from an old graphophone reproducer and applied it in reproducers like "Fletcher No. 1"?

A. Not to my knowledge.

26 Q. The small metal block which is cemented to
79 the centre of the diaphragm in "Fletcher No. 1," and which carries the spring which forms the eyes to which the link from the sapphire arm is connected; did you take that block from the "Edison Reproducer"?

A. No, sir.

27 Q. You, therefore, omitted the part cemented to the centre of the diaphragm of the "Edison Reproducer" and substituted this block and attached spring of "Fletcher No. 1"?

A. Yes, sir; that was so stated in my previous an-
80 swer.

28 Q. Is that what you refer to as the cross-head in your answer to Q. 16?

A. Yes, sir.

29 Q. The tube plate which you say you discarded and substituted one of your own is the plate which in the "Edison Reproducer No. 1" bears the number 167,750?

A. Yes, sir; the corresponding plate.

30 Q. Then it comes down to this: that in making "Fletcher Re producer No. 1," you retained only the

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diaphragm, the two rings which hold and clamp the diaphragm and the sapphire point; is that right?

A. No, sir.

31 Q. What other parts did you retain?

A. The weight.

32 Q. But you have already testified that the weight of "Fletcher No. 1," was not a part of the "Edison Reproducer"?

A. In that particular case, yes, sir.

82

33 Q. Then is not 30 Q. a correct statement?

A. In part only.

34 Q. In what respect is it incorrect?

A. I always retain the weight supplied with the "Edison Reproducer."

35 Q. But with reference to Complainant's Exhibit "Fletcher Reproducer 1," it is true that you retained of the "Edison Reproducer," from which it was made, only the diaphragm, the two rings which hold and clamp the diaphragm and the sapphire point?

83

A. Yes, sir; I think that is right.

Adjourned to Wednesday, October 16th, 1901, 11 A. M., at the office of the complainant's solicitors, 31 Nassau street, New York City.

OCTOBER 16, 1901.

Met pursuant to adjournment.

84

Present—Counsel as before.

DIRECT EXAMINATION OF THE WITNESS ELMER FLETCHER CONTINUED BY MR. DYER:

36 Q. You evidently regard Fletcher Reproducer No. 1 as an exception to your general practice, which is to retain the weight of the Edison reproducer. What proportion of these reproducers "improved" by you was provided with the new weight?

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85

A. As to the proportion, that I couldn't state. There are practically none of them on the market with that weight the same as Fletcher Reproducer No. 1.

37 Q. How many of that kind did you make?

A. At one time, I believe, there were in the neighborhood of a thousand of them manufactured, but not used.

38 Q. What did you do with them?

A. I have them still.

86 39 Q. Were not some of them put out to the trade?

A. A very few.

40 Q. Were these thousand made at the start of your work of "improving" the Edison reproducer?

A. No, sir.

41 Q. I mean at the start of your commercial work, not experimental?

A. No, sir.

42 Q. What is the fact as to your commercial work in "improving" the Edison reproducer relative to the
87 time when you employed the new weight and the time when you changed the Edison weight?

A. I found that when the Edison speakers were sent to me by customers—by "speaker" I mean reproducer—that in changing the weight and applying my improvement it took up so much time and delayed the return of the reproducer to the customer that there was more or less dissatisfaction. Then I asked Mr. Douglas, who was my selling agent, to purchase of the National Phonograph Company some of these weights,
88 in order that I might avoid any delay in delivery of the goods. The National Company refused to sell these weights in any quantities and at prices that would enable me to use them; in fact, they practically refused to sell them, and my sole object in making these weights was to accommodate the customers. I found that in the manufacture of these weights the work was not satisfactorily performed, and I have recalled, as far as possible, every weight that was put on the market by me.

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43 Q. Can you furnish a sample for use in the case of a reproducer like Fletcher Reproducer No. 1, having the weight of the Edison reproducer retained?

A. Yes, sir. Here is one. I also hand you two weights detached, each of them Edison weights—one of them as it originally comes to me, and the other as I have changed it.

90 The complete reproducer produced by the witness is offered in evidence by complainant's counsel and marked "Complainant's Exhibit Fletcher Reproducer No. 2." The detached weights produced by the witness are also offered in evidence by complainant's counsel, and are marked respectively "Complainant's Exhibit Edison Weight" and "Complainant's Exhibit Edison Weight Modified."

91 44 Q. In changing the Edison weight, why do you put on a different hinge?

A. To make it more suitable for my purposes. The hinge used by the Edison weight as it came to me is too loose in its bearings, and the weight is not properly supported, and is allowed to tip one way or the other and interfere with the action of the reproducer, while the hinge that I supply keeps the weight level at all times.

92 45 Q. I observe that your hinge is pivoted on the weight, while the Edison hinge arm is rigidly attached. Is there any purpose in this difference?

A. Yes, sir.

46 Q. What is it?

A. The Edison weight, while the hinge is a fixture in the weight, it is made loose enough at the jointed end to allow the weight sufficient movement so that the reproducing sapphire can find the track. I apply my hinge or attach it to the weight with a pivot in such a manner as to keep the weight level and yet that it may have the same action that it originally had.

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47 Q. I notice that the weights in the Exhibits Fletcher Reproducers Nos. 1 and 2 have a considerably greater downward movement away from the diaphragm than the weight in Edison Reproducer No. 1, the weights on the Fletcher reproducers being cut away where they engage the heads of the limiting screws, so as to permit this greater movement. Is there any purpose in that greater movement, and, if so, what?

94 A. Yes, sir; I changed the leverage in the sapphire arm. This causes the difference in the rise and fall of the weight.

48 Q. Do you mean that in your reproducer the same extent of movement of the sapphire point toward and away from the diaphragm requires a greater movement of the weight than in the Edison reproducer?

A. Yes, sir.

49 Q. Please explain what you regard as the differences in construction and function between your sapphire arm and the sapphire arm on the Edison reproducer?

95 A. The construction of my sapphire arm enables me to have a perfect joint that will not allow any rattle of two parts of metals, while the Edison sapphire arm is of necessity loosely jointed; mine gives a more positive and substantial action to the diaphragm, and prevents the ordinary "blasting" of notes in reproducing.

50 Q. You have only referred to the difference in pivoting the sapphire arms on the weights. I observe

96 a number of other differences; for instance, in the Edison arm the pivotal connection with the weight is near the centre of the arm between the sapphire and the diaphragm connection, which are located at the ends of the arm; while in your arm the sapphire is near the center, and the pivotal connection with the weight and the connection with the diaphragm are at the ends of the arm. What is accomplished by these differences?

A. The results mentioned in my last answer.

51 Q. I mean, what is accomplished as a matter of

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construction and operation, *i. e.*, what is thedifference in the relative movement, location, etc., of the parts ?

A. The differences in the relative movement of the parts would be hard to determine. The only intelligent answer that I can give you is that the construction and application of my sapphire arm reverses the action and gives the results before stated.

52 Q. What do you mean by "reverses the action?"

A. I mean that, with the Edison reproducer, when 98
the sapphire point rests on the wax cylinder, the weight itself is suspended from the glass diaphragm practically, while with my construction, when the sapphire point rests on the wax cylinder, the weight is borne upward and is not suspended as in the other case.

53 Q. And is there a difference in the direction and amount of pressure on the diaphragm ?

A. Yes, sir. The pressure is upward, and varies in proportion to the leverage, which is caused by the 99
location of the sapphire in the arm.

54 Q. That is, in your device the pressure on the diaphragm is upwards instead of downwards, as in the Edison device, and is less in your device than in the Edison device ? I refer to the pressure produced by the weight on the diaphragm.

A. The pressure is upward, but, instead of being less, is increased, if there is any difference.

55 Q. Do you consider that anything is accomplished by putting the sapphire point nearer the 100
centre, as you do with your device ?

A. Yes, sir. I consider that the results are very much superior.

56 Q. Why do you discard the Edison cross-head and use one of your own ?

A. In order to make a more perfect connection.

57 Q. Isn't the different cross-head, with the parts connecting it with the sapphire arm, made necessary by your change in the principle of pressure on the diaphragm ?

A. No, sir.

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58 Q. That is, you could transmit the upward pressure if you used the Edison cross-head and link?

A. I could use the Edison cross-head, and might use the Edison link, although I would prefer not to.

59 Q. There seems to be a considerable difference between the tube plate of Edison Reproducer No. 1 and the corresponding plate in Fletcher Reproducers Nos. 1 and 2. Please explain the differences in construction and their function?

102 A. The tube plate in the Edison reproducer is flat, rests close to the glass with a large opening at the centre, while mine is made with a space or sound chamber at the bottom of the central opening; at the bottom of this sound chamber I place a plate or resonator with openings at the outer edge; this increases the volume somewhat and changes the entire tone and quality of the work.

60 Q. What kind of metal is the plate or resonator made out of, and how thick is it?

103 A. I have made them of aluminum, I have made them of brass; I believe they are about twenty-five one-thousandths, approximately, in thickness.

61 Q. Is it your theory that that plate vibrates, or that the sound waves pass through the openings in it, or both?

A. Well, my theory is that it vibrates and that the sound passes through the openings.

62 Q. I notice that in Fletcher Reproducer No. 2 the arm projecting from the outer ring has no lettering
104 on it, while in Fletcher Reproducer No. 1 and in Edison Reproducer No. 1, the corresponding arms carry the word "Reproducer." How do you accouut for this difference?

A. I can't account for it. I have seen a number of them that were that way, and have noticed the same thing myself.

63 Q. You have spoken of Mr. Douglas as having been your selling agent. What was your method of doing business with Douglas?

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A. I entered into an agreement with Mr. Douglas by which he supplied me with the reproducers. I equipped them with my improvement, and returned them to Mr. Douglas.

64 Q. What is Douglas's name, also his business address, and is he still acting as your selling agent?

A. I want to correct the name "Douglas" to Douglas & Co. The name is Douglas & Company, No. 10 West Twenty-second street, New York City. They are not now my selling agents.

106

65 Q. Under this arrangement with Douglas, as I understand you, Douglas would send you a lot of old Edison reproducers, you would change them in accordance with your improvement and return them to him?

A. Yes, sir.

66 Q. And Douglas & Company paid you, I assume, some stipulated price for changing each device?

A. Yes, sir.

67 Q. Now, have you any personal knowledge where Douglas got these Edison reproducers he sent you, or 107
what he did with them after you "improved" and returned them?

A. Not all of them; in fact, but very few of them.

68 Q. He simply sent you the Edison reproducers in greater or less quantities, and you improved and returned them and charged him the stipulated price. Is that right?

A. Yes, sir.

69 Q. How many old Edison reproducers were handled in this way between you and Douglas & 108
Company, and in what quantities did you receive and return them?

Counsel for defendant objects to the use of the word "old" as used in the foregoing question and in question 65 on the ground that nothing has been said to intimate that defendant handled any "old" Edison reproducers.

Complainant's counsel begs to call the Court's

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109 attention to the suggestion made to the witness in the form of an objection.

A. I couldn't state the exact numbers. I should say about 1,500 of them now, and I received them in numbers from one to, I think, as many as a hundred, possibly, at a time.

70 Q. Douglas & Company were dealers in talking machines and supplies, were they not?

110 A. Yes, sir.

Recess.

71 Q. Were all of these 1,500 Edison reproducers sent you by Douglas & Company whole or intact, or didn't some of them have broken diaphragms and other missing parts, which you supplied?

A. No, sir. I have received reproducers from Douglas & Company that had broken diaphragms, but in 111 every case Douglas & Company supplied me with new diaphragms with which to replace the broken ones.

72 Q. What proportion of the 1,500 should you say had broken or missing diaphragms?

A. That I couldn't state.

CROSS-EXAMINATION BY MR. MASTICK:

73 x-Q. How many of the weights which you had made do you suppose are now in use?

A. I can't state exactly the number; I should say 112 possibly 25.

74 x-Q. State approximately how many Edison reproducers you had improved prior to the commencement of this action?

A. I should say about 1,500.

75 x-Q. And out of this 1,500 but 25 had weights other than the weights originally supplied by the complainant company?

A. Yes, sir.

76 x-Q. In your answer to 36 Q., what do you mean by the phrase "on the market?"

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A. I mean reproducers that were sent to me and upon which I had placed my improvement.

77 x-Q. What use do you expect to make of the weights you had made?

A. The only thing they can be used for is old metal.

78 x-Q. And is that the only use you intend to make of them?

A. Yes, sir.

114

79 x-Q. Have you ever used the Edison cross-head connecting the lever with the diaphragm?

A. Yes, sir.

80 x-Q. When and to what extent?

A. When I first began attaching my improvement to the Edison reproducers, and I should say several hundred of them had been used in that manner.

81 x-Q. Did you ever make or use, or sell a jewel reproducer, or reproducing point other than one supplied by the complainant company with the Edison reproducer?

115

A. I always used the reproducer point which was furnished with the reproducers.

82 x-Q. Can't you answer the question more directly?

A. I never made or sold reproducing points, and always used the points supplied by Douglas & Company with the reproducers.

83 x-Q. What proportion of all of the reproducers you improved prior to the commencement of this action did you sell to Douglas & Company?

116

A. All but possibly half a dozen.

84 x-Q. When and to whom were these half dozen sold?

A. To parties who had phonographs and wished their reproducers equipped in this manner.

85 x-Q. Did you sell these half dozen improvements before or after or during your connection with Douglas & Co.?

A. Before.

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86 x-Q. With the exception of this half dozen, was Douglas & Co. your sole selling agent?

A. Yes, sir.

87 x-Q. Was any printed matter ever issued in relation to your improvements, and, if so, by whom?

A. Yes, sir; there was a circular issued by Douglas & Company.

88 x-Q. Who paid for this circular?

A. Douglas & Company.

118

89 x-Q. Can you produce one of these circulars?

A. Yes, sir; I have one here.

Circular produced by witness is offered in evidence by defendant's counsel, and it is marked "Defendant's Exhibit Douglas Circular."

Complainant's counsel objects to the offering at this time of any exhibit for defendant, which should now be marked for identification only.

119

The exhibit is also objected to as immaterial, irrelevant and incompetent.

90 x-Q. Where did you obtain Defendant's Exhibit Douglas Circular?

A. I obtained it from Douglas & Company.

91 x-Q. Does it truly set forth the objects of the Fletcher improvement and the method of carrying on the business in dealing in the same?

120

Complainant's counsel objects to the second portion of the question, on the ground that the witness has already stated that he has no knowledge of where Douglas & Company secured the reproducers which they sent to him, or what they did with them after he returned them.

A. Yes, sir.

92 x-Q. Was Defendant's Exhibit Douglas Circular the only circular ever issued with relation to the Fletcher improvement?

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A. Yes, sir.

93 x-Q. What is the business of Douglas & Company, and who do they represent?

A. They are dealers and jobbers in phonographs and supplies, and represent the National Phonograph Company.

94 x-Q. With whom of Douglas & Co. did you first consult regarding the handling of your improvement?

A. Mr. Douglas.

95 x-Q. What are his initials? 122

A. H. C., I believe.

96 x-Q. Where was he when you had the first conversation with him?

A. In the office of the National Phonograph Company on Fifth avenue.

97 x-Q. Was he connected with them at that time?

A. Yes, sir; I believe he was.

98 x-Q. Do you know what his position was?

A. I believe that he was manager or assistant manager of sales. 123

99 x-Q. Do you know whether Mr. Douglas consulted with anybody regarding the selling of your improvement, and, if so, with whom and with what result?

A. Mr. Douglas submitted an Edison reproducer equipped with my improvement to Mr. Gilmore, president of the National Phonograph Company, and met with no objection.

100 x-Q. When did this occur?

A. Just prior, I believe, to his contract with me. 124

101 x-Q. What contract, and give the time of the year?

A. The contract between Douglas & Company and myself regarding the sale of my improvement. This was a year ago last spring.

102 x-Q. During all the time you were dealing with Mr. Douglas or Douglas & Co., in what way did you regard him as to his relationship with the complainant company?

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125

A. As agent or representative of the National Phonograph Company.

103 x-Q. What grounds had you for believing Douglas & Company to be the agent of the complainant company?

A. It was known throughout the trade, and he advertised himself as such.

104 x-Q. When you use the expression "he," whom do you mean?

126

A. I mean Douglas & Company.

105 x-Q. Please define the term "blasting"?

A. The term is a common one in the phongraph business, and means an imperfect reproduction or an imperfect note.

RE-DIRECT EXAMINATION:

106 Re-d. Q. You continued to sell your improvement after Douglas & Co. ceased to be your selling agant, did you not?

127

A. Not immediately.

107 Re-d. Q. Who became your next selling agent?

Question objected to by defendant's counsel on the ground that anything done by defendant since the commencement of this action is irrelevant and immaterial.

128 A. I have made no contract with anybody or concern.

108 Re-d. Q. You have continued, however, to sell your improvement through dealers in talking machines and supplies, have you not?

Same objection on the part of defendant's counsel as to the preceding question.

A. Recently, yes, sir.

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109 Re-d- Q. You have sold to A. D. Matthews & Sons, of Brooklyn, have you not?

Same objection as to 107 Re-d. Q.

A. Yes, sir.

110 Re-d. Q. Do you regard Matthews & Sons as agents or representatives of the complainant?

Same objection as to 107 Re-d. Q. 130

A. Yes, sir.

111 Re-d. Q. In the same sense that you regarded Douglas & Co. as agents or representatives?

Same objection as to 107 Re-d. Q.

A. In a sense, yes.

112 Re-d. Q. In any different sense? If so, what?

131

Same objection as to 107 Re-d. Q.

A. In the same sense in regard to selling phonographs and supplies.

113 Re-d. Q. And that sense is, that both of these concerns, like many other concerns here and in other parts of the country, sell phonographs and supplies manufactured by the complainant?

Same objection as to 107 Re-d. Q.

132

A. In the sense that they are jobbers and agents of the National Phonograph Company's products.

114 Re-d. Q. That is, agents in the sense of being jobbers or sellers?

Same objection as to 107 Re-d. Q.

A. Yes, sir.

115 Re-d. Q. Douglas & Co., however, did not limit

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133 themselves to handling the product of the complainant, did they?

A. No, sir.

116 Re-d. Q. They also handled competing materials, such as Bettini's reproducers and records, polyphones, Sankey records, and other supplies competing with the supplies of complainant?

A. They may have.

117 Re-d. Q. Don't you recollect that they held
134 themselves out to do so by their letter-heads, advertisements, etc.?

A. I can't dispute it. I do not recollect that they advertised it in that manner.

118 Re-d. Q. But you do recollect that they handled apparatus and supplies competing with the products of the complainant?

A. They handled my improvement; that is one thing that they handled. I can't state that they handled goods competing with the complainant's.

135 119 Re-d. Q. Do you recollect seeing their letter head during the time you were doing business with them?

A. Yes, sir.

120 Re-d. Q. I hand you a letter-head of Douglas & Company. Is this the kind of letter-head they had while dealing with you?

A. I couldn't say that it was; neither can I deny that it was.

121 Re-d. Q. It impresses you as the same letter-
136 head, does it not?

A. The general appearance of it is the same.

122 Re-d. Q. I call your attention to the articles referred to in the right-hand column of this letter-head. Do you know generally what the character is of those articles?

A. I do, yes, sir.

123 Re-d. Q. And do you recognize them as, in part, at least, articles not made by the complainant and competing with the complainant's product?

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A. I should say from the letter-head that they were not made by the complainant, in part.

124 Re-d. Q. And compete on the market with similar articles made by the complainant?

A. To a degree possibly, yes.

125 Re-d. Q. At the time you made your contract with Douglas & Co., was Douglas in the employ of the complainant, so far as you know?

A. As far as I know, when I began my negotiations 138
with him, yes, sir.

126 Re-d. Q. Have you any personal knowledge that he was employed by the complainant even at that time?

A. Only that he was doing business in their office, apparently attending to their work.

127 Re-d. Q. Did he have his concern of Douglas & Co. running at that time?

A. No, sir.

128 Re-d. Q. How long an interval was it between 139
your first talk with Douglas in complainant's office and the time when you made your contract with Douglas & Co.?

A. I should say possibly three or four weeks.

129 Re-d. Q. What foundation have you for the statement that Douglas submitted your improvement to complainant's president, and met with no objection?

A. Mr. Douglas made the statement to me.

130 Re-d. Q. Have you a copy of the contract you 140
made with Douglas with you?

A. No, sir.

131 Re-d. Q. Have you any objections to produciug that contract?

A. I would like to act on the advice of my counsel on that.

Complainant's counsel, in view of the attempt of defendant's counsel to make it appear on cross-examination that the defendant, in dealing with Douglas & Co., thought he was dealing

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141 with the complainant, requests defendant's counsel to advise the witness to produce the contract, since it will probably show the capacity in which the parties thereto made the contract.

Counsel for defendant states that the witness has not the contract with him, and that until counsel has had an opportunity to examine the contract he cannot make reply to the re-
142 quest as made.

132 Re-d. Q. Did you prepare Defendant's Exhibit Douglas Circular ?

A. No, sir.

133 Re-d. Q. The reproducer is known to the trade as a " speaker," is it not ?

A. It is sometimes called a speaker ; yes, sir.

134 Re-d. Q. The references to the Edison speaker and Edison automatic speaker in this circular, mean
143 reproducers ?

A. Yes, sir ; I should say so.

135 Re-d. Q. I read from this circular : " Edison recorders can be altered to ' Fletcherized ' automatic speakers. If you prefer to keep your present speaker, send your recorder and P. O. money order for $3.50." Do you understand that statement ?

A. Yes, sir ; I think I do.

136 Re-d. Q. What does it mean ?

A. It might mean an ordinary recorder ; it might
144 mean a combination recorder and speaker or recorder and reproducer.

137 Re-d. Q. It means anyway the taking of a recording instrument and converting it into a reproducing instrument, does it not ?

A. If it is a recorder it would mean that.

138 Re-d. Q. Did you intend to include this part of the circular in your assent to your counsel's statement (91 x-Q) that this circular truly sets forth the method of carrying on the business in dealing in your improvement ?

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A. Yes, sir.

139 Re-d. Q. Then, in addition to "Fletcherizing" Edison reproducers, you also "Fletcherized" Edison recorders and converted them into reproducers; is that so?

A. Yes, sir.

140 Re-d. Q. And sold the improvements to Douglas & Co. before the suit was brought?

A. Yes, sir.

141 Re-d. Q. After these Edison recorders were 146
"Fletcherized" by you and converted into reproducers, and returned to Douglas & Co., were they in all substantial respects, in the construction and arrangement of the parts, the same as Edison Exhibit Fletcher Reproducer No. 2?

A. Yes, sir; they were practically the same.

142 Re-d. Q. And in what respect did these Edison recorders which you "Fletcherized" differ from Complainant's Exhibit Edison Reproducer No. 1?

A. They differ in the form of the sapphire arm, the 147
sapphire itself and the hinge on the weight is different; otherwise they are practically the same; the ring and screw and tube plate are all alike.

143 Re-d. Q. How many of the 1,500, or thereabouts, of Edison instruments which you "Fletcherized" for Douglas & Company were recorders, as distinguished from reproducers in their original form?

A. I couldn't state the exact number; there may have been a hundred, more or less.

144 Re-d. Q. And how many of them were combina- 148
tion recorders and reproducers?

A. Possibly half of them; I couldn't state exactly.

145 Re-d. Q. Do you mean half of the 1,500?

A. Half of the hundred.

146 Re-d. Q. In the case of the Edison recorders which you "Fletcherized" into reproducers, what did you do for sapphire reproducing points?

A. They were always supplied by Mr. Douglas or Douglas & Company.

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147 Re-d. Q. Supplied as separate articles, and not as parts of the instruments which you "Fletcherized" in the case of these particular instruments?

A. In the case of the recorder alone, yes, sir.

RE-CROSS-EXAMINATION:

148 Re-x-Q. Do you know whether or not Douglas & Co. sold records procured from the National Phono-
150 graph Co.?

A. Yes, sir.

149 Re-x-Q. Did they have such records for sale?

A. Yes, sir.

150 Re-x-Q. Excepting the one-half dozen or so sold by you to other parties before entering into contract relations with Douglas & Co., were all the reproducers improved by you prior to the commencement of this suit sold to Douglas & Co.?

Q. Yes, sir.

151 151 Re-x-Q. Did you sell any improvements or "Fletcherized" reproducers, as you called them, between the time of the filing of the complaint in this suit and the filing of your answer herein?

A. No, sir.

152 Re-x-Q. Why did you renew your operations after you had once discontinued?

A. There was a demand for the article and I wanted the business.

153 Re-x-Q. Did you consult with anyone as to the
152 advisibility of going into business?

A. I asked the advice of counsel.

154 Re-x-Q. And what was that advice?

A. To go ahead with the business.

Signature and certificate waived.

Adjourned to Wednesday, October 23, 1901, at 11 A. M., at the same place.

Adjourned to Friday, November 1, 1901, at 11 A. M., at same place.

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NOVEMBER 1, 1901.

Met pursuant to adjournment.

Present—Counsel as before.

Complainant's counsel offers in evidence the following documents, and the same are marked as indicated.

Certified copy of Patent No. 430,278, granted June 17, 1890, to Thomas A. Edison, for Improvement in Phonographs, and the same is marked "Complainant's Exhibit Patent No. 430,278 in Suit." 154

Certified copy of Patent No. 397,280, granted February 5, 1889, to Thomas A. Edison, for Improvement in Phonograph Recorders and Reproducers, and the same is marked "Complainant's Exhibit Patent No. 397,280 in Suit."

Certified copy of Patent No. 484,584, granted October 18, 1892, to Thomas A. Edison, for Improvement in Phonograph Reproducers, and the same is marked "Complainant's Exhibit Patent No. 484,584 in Suit." 155

Certified copy of assignment from Thomas A. Edison and the North American Phonograph Company to Edison Phonograph Company of Patent No. 430,278 in suit, dated May 22, 1892, and the same is marked "Complainant's Exhibit Assignment No. 1." 156

Certified copy of assignment dated January 16, 1896, from Edison Phonograph Company to John R. Hardin, Receiver, of Patent No. 430,278 in suit, and the same is marked "Complainant's Exhibit Assignment No. 2."

Certified copy of assignment dated October 5, 1896, from John R. Hardin, Receiver, to National Phonograph Company, of Patent No. 430,278 in suit, and the same is marked "Complainant's Exhibit Assignment No. 3."

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Certified copy of assignment dated January 16, 1896, from Thomas A. Edison to John R. Hardin, Receiver, of Patents Nos. 397,280 and 484,584 in suit, and the same is marked "Complainant's Exhibit Assignment No. 4."

Certified copy of assignment dated October 5, 1896, from John R. Hardin, Receiver, to National Phonograph Company, of patents in suit Nos. 397,280 and 484,584, and the same is
158 marked "Complainant's Exhibit Assignment No. 5."

Certified copy of certificate of incorporation of National Phonograph Company, and the same is marked "Complainant's Exhibit Certificate of Incorporation of National Phonograph Company."

JAMES F. COLEMAN, being duly sworn, testifies as follows:
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DIRECT EXAMINATION BY MR. DYER:

1 Q. What is your name, age, residence and occupation?

A. James F. Coleman; 36 years; residence, New York City; mechanical draughtsman.

2 Q. What experience have you had in matters relating to patents for inventions, and particularly those relating to the phonograph art?

160 A. In 1883 I started in the business of making Patent Office drawings, and since that time I have been continually engaged in work connected with inventions, either in the securing of patents or in designing and drawing new machinery. I have had occasion to examine many hundreds of patents with a view of determining the probable novelty of inventions. I have prosecuted a number of cases in the Patent Office, and in my work have become familiar with the talking-machine art as shown by patents.

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3 Q. Have you read, and do you understand, the three patents in suit—viz., Patents Nos. 397,280, 430,278 and 484,584?

A. I have examined these patents, and I understand them.

4 Q. Have you examined, and do you understand, the construction and method of operation of the phonograph reproducers, known in this case as Complainant's Exhibit Fletcher Reproducer No. 1 and Complainant's Exhibit Fletcher Reproducer No. 2? 162

A. I have examined these exhibits and I understand their construction and mode of operation.

5 Q. Please compare these two exhibits—Complainant's Exhibit Fletcher Reproducer No. 1 and Complainant's Exhibit Fletcher Reproducer No. 2—with Patent No. 397,280 in suit, and state whether or not, in your opinion, said exhibits embody the invention described in said patent and particularly set forth in claims 1, 2, 3, 8 and 10 thereof, giving your reasons for any opinion you may express? 163

A. Patent No. 397,280 is on a phongraph recorder and reproducer. The object of the invention of the patent was to produce a device by which the recording or reproducing point would be capable of movement independent of the diaphragm, but such independent movement was so retarded that it would not occur during the rapid sound vibrations, but only by movements produced by irregularities or eccentricities of the record surface. To be more specific, the reproducer point is pivoted to a block, which is cemented to the under-side of the diaphragm, the arm carrying the reproducer point having secured thereto or being connected with a fan, a weight or a dashpot piston, the inertia or retardation of the device secured to the reproducer arm being such that the device would not be moved by the rapid vibrations produced by the sound record, but would only be moved by the slower movements of the reproducer point, caused by irregularities or eccentricities of the record; but under the quick sound vibrations the con- 164

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165 nection of the reproducing point to the diaphragm is a practically rigid one, so that the diaphragm will vibrate in unison with the reproducer point. This invention is fully covered by the claims of Edison Patent No. 397,280, to which my attention has been called.

Complainant's Exhibit Fletcher Reproducer No. 1 and Complainant's Exhibit Fletcher Reproducer No. 2 are practically identical in construction and operation,
166 and what I shall say about one will apply equally to the other or both. The exhibit is composed of two rings clamping the diaphragm and a tube plate between them. The lowermost ring has secured to it a stationary hinge member, to which is pivoted another hinge member, the latter having a wide leaf; to the latter leaf is pivoted a disk capable of horizontal movement. The disk has a slot cut through from its centre to its periphery at a point opposite the hinge; the outer end of this slot is counterbored from below to allow
167 for considerable vertical movement of the disk, the movement being limited by the head of a screw which extends through the slot and is secured to the lower ring. The top of the weight is grooved at right angles to the slot and near the outer end thereof for the reception of two pivot blocks, which are secured in place by screws and washers. Bearing in the pivot blocks is the shank of the reproducer lever, the lever working in the slot of the disk. Near the centre of the reproducer lever is a sleeve, in which is secured the shank
168 of the reproducer point, the reproducer point having its bearing surface of a spherical form. The end of the lever opposite the shank has secured to it a small spring, the free end of which is formed with a loop. Resting in the loop of the spring is a wire link, by which the end of the spring just mentioned is connected to a similar spring secured to a block which is cemented to the under side of the diaphragm. In operation, the reproducer point is caused to rest on the record surface, thereby lifting the free end of the disk from the head of the limiting screw;

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169 as the record moves under the point the point will be caused to vibrate by the minute indentations of the record groove, such vibrations being communicated directly to the diaphragm; slower movement communicated to the point by eccentricities of the record blank will cause the weight to move and have no effect upon the diaphragm.

The exhibit is a reproducer for phonographs, and has a diaphragm and a reproducing point connected to the diaphragm, the point being capable of a retarded 170 movement independent of the movement of the diaphragm. Therefore, I find that the exhibit has embodied in it all of the elements of claim 1 of Edison Patent No. 397,280 in suit.

The exhibit reproducer has a diaphragm, a reproducing point connected thereto, the point being capable of independent movement thereof, and is provided with a retarding device for controlling the independent movement of the point. Therefore, I find that all of the elements of claim 2 of the patent are embodied in 171 the structure of the exhibit.

The exhibit reproducer is provided with a diaphragm, a reproducing point pivotally connected to the diaphragm, the point having movement independent of the diaphragm, and being provided with a retarding device controlling such movement. Therefore, I find that the exhibit has embodied in its structure all of the elements of claim 3.

The exhibit reproducer has a diaphragm, a lever pivoted thereto, the lever being capable of movement 172 independent of the diaphragm, the lever carrying a reproducing point, and a retarding device is connected to said lever. Therefore, I find that all of the elements of claim 8 are present in the structure of the exhibit.

In the Exhibit Reproducer will be found a diaphragm, a reproducing point connected therewith and capable of movement independent thereof, and a fan for retarding such independent movement. Therefore,

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I find that all the elements of claim 10 are present in the structure of the exhibit.

6 Q. Please compare the same exhibits, Fletcher Reproducers Nos. 1 and 2, with Patent No. 430,278 in suit, and state whether or not, in your opinion, said exhibits embody the invention described in said patent, and particularly set forth in claims 9, 11, 12, 15, 16, 17, 18, 20, 29 and 31 thereof?

A. Patent No. 430,278 is for a phonograph, and,
174 more particularly, the recording and reproducing points of that instrument, the object being, in the case of the reproducer, to make the point of such a shape that it will have a better bearing surface in the record groove, and so mount the point that it can always accurately track the record groove, even should the lever carrying the point be out of line with the record groove.

The reproducing point is made in spherical form and has a shank or extension, which shank or extension is
175 cemented in a recesss in a sleeve carried by the reproducer lever. The lever is pivoted to the diaphragm and also to a weight, the pivot between the lever and the weight being of such a character as to allow for slight lateral movement of the lever, the weight tending always to force the reproducing point to the bottom of the record groove.

I find the invention of the Edison Patent No. 430,-278 in suit to be aptly covered by the claims to which my attention has been directed.

176 The Exhibit Phonograph Reproducer is provided with a reproducing point having a shank or extension, the same being held in a sleeve. I find, therefore, embodied in the structure of the exhibit all of the elements of claim 9 of Patent No. 430,278.

In the exhibit phonograph reproducer will be found a spherical reproducing point whose bearing surface is the surface of a portion of the sphere. I find, therefore, all of the elements of claims 11 and 12 embodied in the structure of the exhibit.

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In the exhibit phonograph reproducer I find a pivoted reproducer point capable of lateral movement, and a weight bearing on the reproducer point. I find, therefore, that the structure of the exhibit embodies all the elements of claim 15.

In the exhibit phonograph reproducer I find a reproducing point having a bearing surface which is the surface of a portion of a sphere, the point being pivoted so as to have a lateral movement and a weight bearing on the point. I find, therefore, that in the exhibit reproducer are embodied all of the elements of claim 16. 178

In the exhibit reproducer I find a reproducing point having a bearing surface which is the surface of a portion of a sphere, the point being pivoted so as to have a lateral movement. I find, therefore, all of the elements of claim 17 present in the structure of the exhibit.

In the exhibit reproducer I find a laterally rocking spherical point, and a weight bearing on the point. Therefore, it will be seen that all of the elements of claim 18 are embodied in the exhibit. 179

In the exhibit reproducer I find a reproducing point, a lever carrying the same, the lever connected with the diaphragm, a hinged plate, and a hinge connection between the lever and the plate. I find, therefore, all of the elements of claim 20 present in the exhibit.

In the exhibit phonograph reproducer I find a diaphragm, a lever connected to the diaphragm, a sleeve carried by the lever, and a reproducing point removably held in the sleeve. I find, therefore, all of the elements of Claim 29 embodied in the structure of the exhibit. 180

In the Exhibit Phongraph Reproducer I find a reproducing point, a holding sleeve and cement capable of being softened by heat holding the point in the sleeve. I find, therefore, the elements of claim 31 embodied in the structure of the exhibit.

Recess.

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7 Q. Referring to the answers to the last two questions, do you intend to express the opinion that the inventions described in the two patents in suit referred to and particularly set forth in the claims referred to, are embodied in the two exhibits Fletcher Reproducers Nos. 1 and 2 referred to?

A. In considering the exhibits referred to, I find that all the elements of the claims of the two patents which I have above considered are present in the ex-
182 hibits in the same combination and for the accomplishment of the same result as set forth in the patents. I therefore find that the inventions of the patents above referred to are present in the exhibits.

8 Q. Please compare the same exhibits, Fletcher Reproducers Nos. 1 and 2, with Patent No. 484,584 in suit, and state whether or not, in your opinion, said exhibits embody the invention described in said patent and set forth in all three claims thereof?

183 A. Patent No. 484,584 in suit is for a phonographic reproducer, and the object of the invention of the patent is to produce a reproducer point that will not become dulled or roughened on account of the chemical action of acids or other substances found in the wax-like composition of the phonogram, or by the action of fine particles of hard material which become mixed with the composition during manufacture or which may become lodged on the surface thereof. It was found that hard crystals, earthy oxides and gems, such for example as sapphire,
184 quartz or garnet, all of which may be termed "jewels," co-operate in the most effective manner with the wax-like phonogram blank, since the acids thereof do not attack them, they are not rusted by moisture, and they are adapted to withstand the dulling action of the hard particles referred to. In complainant's exhibits referred to in the question I find a jewel reproducer for use in a phonograph on a phonogram blank of wax-like material. I find, therefore, that all of the elements of claim 1 of Patent No. 484,584 are present in the structures of the exhibits to be used in the same com-

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bination and for the accomplishment of the same result as that contemplated in the patent, and that therefore the invention of claim 1 is present in the exhibits.

In the exhibits I find a rounded jewel reproducer, to be used in a phonograph on a phonogram blank. Therefore, I find that the exhibits embody the invention described in claim 2 of the patent.

In the exhibit reproducers I find a bearing point for phonographs consisting af a jewel which is not affected 186
by chemical action of the wax-like material of phonogram blanks. I find, therefore, that all of the elements of claim 3 are embodied in the exhibits, to be used in the same combination and for the accomplishment of the same result. Therefore, the invention of the third claim of the patent in suit is present in the exhibits.

CROSS-EXAMINATION BY MR. MASTICK:

9 x-Q. Has the nature of your work, in connection 187
with letters patent, been such as to cause you to distinguish between claims of patents in the prior art and claims in applications for patents, so as to determine whether or not the latter claims referred to show patentable novelty or difference over the claims or structures shown in the patents of the prior art?

A. I have many times had occasion to amend applications for letters patent, and in doing so had to determine whether or not the claims in the application showed patentable novelty over the references cited— 188
i. e., the prior art.

10 x-Q. In considering claim 1 of Patent 397,280, in connection with the exhibit reproducers referred to, what particular portion of the apparatus do you designate the "diaphragm?"

A. The diaphragm in the exhibits referred to is the glass disk clamped between the two rings.

11 x-Q. Similar in all respects to the diaphragm marked "A" in Patents 397,280 and 430,278; is that not so?

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A. Excepting that there is no means of telling of what material the diaphragm shown in the two patents referred to is composed of, that is so.

12 x-Q. Do you find the diaphragms referred to as in the exhibit reproducers, to be similar in all respects to the diaphragm shown in Complainant's Exhibit Edison Reproducer No. 1?

A. I find that the diaphragms in the three exhibits referred to are identical to all appearances.

190 13 x-Q. And I presume you will make the same answer to a similar question regarding the diaphragm only wherever the diaphragm is an element of any of the claims you have referred to in your deposition?

A. Yes, sir.

14 x-Q. Please point out what you consider to be the reproducing point as referred to in claim 1 of 397,280, and which you have found in the exhibit reproducers discussed by you in your direct testimony?

191 A. The reproducer point mentioned in the claim is designated by "*c*" in figures 1, 2, 3, 4, 5 and 6 of the drawing of the patent.

15 x-Q. Please point out the particular structure which you consider is such reproducing point in the exhibit reproducers referred to?

A. In the exhibit reproducers referred to the reproducing point is the jewel secured in the lever which is pivoted to the weight and also to the diaphragm.

192 16 x-Q. What is the shape or form of the jewel reproducing point you refer to in your last answer and as found in the exhibit reproducers?

A. The reproducer point is of spherical form.

17 x-Q. Have you not testified that the reproducing point referred to has a shank or extension?

A. That is so.

18 x-Q. Will you not then kindly point out and tell the Court what the shape of the reproducing point and extension is as you find it in the exhibit reproducers?

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A. As near as I am able to judge without removing the point from the lever, it is in the form of a cylinder having one end rounded.

19 x-Q. How does it compare in shape with the jewel reproducing point found in Complainant's Exhibit Edison Reproducer No. 1?

A. They are identical.

20 x-Q. In referring to claim 1 of Patent 397,280, what did you find in the exhibit reproducers discussed which rendered the reproducing points "capable of a retarded movement independent of the movement of the diaphragm"? 194

A. The hinged disk and the pivotal connection between the disk and the lever carrying the reproducer point.

21 x-Q. Do you find that the reproducing point in Complainant's Exhibit Edison Reproducer No. 1 is "capable of a retarded movement independent of the movement of the diaphragm," and, if so, what do you find renders it so capable? 195

A. The reproducer point in the exhibit just referred to is capable of movement independent of the diaphragm by reason of the hinged weight and the pivotal connection between the weight and the lever carrying the reproducer point.

22 x-Q. Then you find that the means shown in Exhibit Fletcher Reproducers for causing a retarded movement is similar to like means shown in Exhibit Edison Reproducer No. 1?

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A. Both exhibits referred to have the same means for causing the retarded movement of the reproducer point.

23 x-Q. In your opinion is there any patentable difference between the means of hinging the weighted disk to the ring in Exhibits Fletcher Reproducers over like means shown in Exhibit Edison Reproducer No. 1?

A. The difference between the two methods of hinging the plates is very slight. It is barely possible that a patent could be secured on the device shown in Exhibits Fletcher Reproducers,

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but such a patent would be extremely limited, and would be dominated by claim 20 of Edison Patent 430,278, and I am not sure that even such a limited patent as I have described could be obtained.

24 x-Q. In your opinion is there any patentable difference in the pivotal connection between the weight and the lever carrying the reproducing point in Exhibits Fletcher Reproducers over like connection shown in Exhibit Edison Reproducer No. 1 ?

198 A. In my opinion there is nothing patentable in the pivotal connection between the weight and lever carrying the reproducing point of the exhibits.

25 x-Q. Do you mean nothing patentable in view of what is shown in Exhibit Edison Reproducer No. 1 ?

A. What I meant to say was that I do not consider the connection patentable, and did not consider it particularly with the Exhibit Edison Reproducer.

26 x-Q. Will you then kindly answer 24 x-Q. ?

A. In my opinion there is no patentable difference ;

199 that is, assuming that the Edison device was cited as a reference for the other.

27 x-Q. Do you find that there is any limitation in any of the claims of the various patents you have referred to regarding the means of connecting the reproducing point with the diaphragm ?

A. Unless the word " pivoted," which occurs in several of the claims, can be construed as a limitation, I find none.

28 x-Q. Do you find the reproducing point in

200 Fletcher Exhibit Reproducers pivotally connected with the diaphragm ?

A. Yes, sir.

29 x-Q. Do you find the reproducing point in Exhibit Edison Reproducer No. 1 pivotally connected to the diaphragm ?

A. Yes, sir.

30 x-Q. Then under your construction of claim 1, any means of connecting the reproducing point with the diaphragm would be within the scope of said claim ?

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A. That is not my understanding of the claim.

31 x-Q. What is your understanding in this respect?

A. That the reproducing point is connected to the diaphragm in such a manner that it is capable of movement independent of the movement of the diaphragm, which would not be the case if the reproducing point were cemented to the diaphragm.

32 x-Q. Then do you understand that any means of so connecting the reproducing point with the diaphragm in such manner that the reproducing point is 202
capable of movement independent of the movement of the diaphragm, comes within the scope of claim 1 of Patent 397,280?

A. Such is not my understanding of the claim. If the reproducing point were hung on a ring fastened to the diaphragm, it would be capable of movement independent of the diaphragm, and would not come within the scope of the claim.

33 x-Q. Then do you understand that any means of so connecting the reproducing point with the dia- 203
phragm in such manner that the reproducing point is capable of movement independent of the movement of the diaphragm and adapted to perform the purpose of the reproducing point in claim 1, comes within the scope of said claim in Patent 397,280?

A. That is not my understanding of the claim.

34 x-Q. What limitations do you find in claim 1 which argue against such a construction?

A. The claim is for the combination with a diaphragm of a recording or reproducing point connected 204
therewith and capable of a retarded movement independent of the movement of the diaphragm. Unless the independent movement of the reproducing point is retarded, the reproducing point would never have that practically rigid connection with the diaphragm to cause the vibration of the latter.

Adjourned to Saturday, November 2, 1901, at 11 A. M., at the same place.

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NOVEMBER 2, 1901.

Met pursuant to adjournment.

Present—Counsel as before.

CROSS-EXAMINATION OF MR. COLEMAN BY MR. MASTICK CONTINUED:

35 x-Q. Do you find that claim 1 of Patent 397,280
206 prescribes any particular means for connecting the reproducing point to the diaphragm?

A. No, sir.

36 x-Q. What do you find in the Exhibits Fletcher Reproducers which renders the reproducing point "capable of movement independent" of the diaphragm?

A. The link connection between the end of the reproducer arm and the block which is secured to the diaphragm, and the pivotal connection between the
207 other end of said lever and the hinged disk.

37 x-Q. What do you find in Exhibit Edison Reproducer No. 1 which renders the reproducing point "capable of movement independent" of the diaphragm?

A. The link connection between the reproducer lever and the plate secured to the diaphragm, and the pivotal connection between said lever and the hinged weight.

38 x-Q. Do you find Edison Reproducer No. 1 con-
208 structed in accordance with the device described in Patent 430,278 and illustrated particularly in figures 5 and 6 of the drawings of said patent?

A. With the exception that the size and shape of the weight in the exhibit is different from that shown in the two figures referred to, and that the position of the reproducer lever is reversed, I find that the Edison Reproducer No. 1 is constructed in accordance with the device described in the patent referred to.

39 x-Q. In your opinion, is there any patentable difference in the link connection between the end of

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the reproducer arm and the block which is secured to the diaphragm in Exhibits Fletcher Reproducers over the like connection in Edison Reproducer No. 1 ?

A. I think not.

40 x-Q. Will you please compare Exhibits Fletcher Reproducers with the device described in patent 430,278, and particularly illustrated in figures 5 and 6 of the drawings thereof, stating what differences, if any, you find ?

210 A. In figures 5 and 6 of the drawings of the patent referred to are illustrated a phonograph reproducer, consisting of a tube plate, a ring secured to the under side of the tube plate, and a diaphragm secured between the two plates. Hinged to one side of the ring is a weight, the downward movement of which is limited by a limiting screw. Pivoted to the under side of the weight is a reproducer lever which is capable of lateral movement, the said reproducer lever being also pivotally connected to a block on the diaphragm. The 211 Exhibit Fletcher Reproducer is a reproducer for phonographs, and consists of two rings with a diaphragm and tube plate clamped between them. Hinged to one side of the lower ring is a weight to which is pivoted a reproducer lever which is capable of lateral movement, the other end of said lever being pivotally secured to a block on the diaphragm. The respects in which the Fletcher reproducers differ in details of construction from figures 5 and 6 of the drawings of the patent referred to are, first, the tube 212 plate is secured between the two rings ; second, the means by which the reproducer lever is permitted to have lateral movement, and, third, the manner of securing the end of the reproducer arm to the block on the diaphragm.

41 x-Q. The means of securing the tube plate between the two rings which you filed in Exhibits Fletcher Reproducers is that illustrated in figure 1 of Patent 397,280, is it not ?

A. Yes, sir.

42 x-Q. In your opinion is there any patentable difference in the second and third differences recited

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213 by you in answer to 40 x-Q over the means, for the same purpose, shown in figures 5 and 6 of the drawings referred to in said question ?

A. I think not.

43 x-Q. In Exhibit Fletcher Reproducers what do you find answering to the element of " a fan " in claim 10 of Patent 397,280 ?

A. The disk hinged to the under side of the ring.

44 x-Q. In your opinion is the reproducting point
214 found in each of the Fletcher reproducers adapted primarily for use as a reproducing point ?

A. Yes, sir.

45 x-Q. Is the shape of the reproducing point in each of the Fletcher reproducers particularly adapted for securing said reproducing point in a sleeve ?

A. Yes, sir.

46 x-Q. Why is the reproducing point found in each of the Fletcher reproducers in the form of a cylinder having one end rounded ?

215 A. The lower end of the reproducer point referred to must be the rounded end of a cylinder in order to have the point accurately track the record. The upper part is a cylinder, because it must be of that form to fit the cylindrical perforation in the sleeve.

47 x-Q. The cylindrical portion of the reproducer point referred to is particularly adapted to fit a sleeve, is it not ?

A. Yes, sir.

48 x-Q. What do you find in the Fletcher repro-
216 ducers which causes the reproducing point to be " laterally rocking " in the sense of claim 18 of Patent 430,278 ?

A. The pivot which permits horizontal movement of the weight.

49 x-Q. What do you find in Edison Reproducer No. 1 which causes the reproducing point to be " laterally rocking " in the sense of claim 18 of Patent 430,278 ?

A. The pivotal connection of the said lever with the weight, and also the pivotal connection of the weight with the ring.

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50 x-Q. Do you find the reproducing point in Edison Reproducer No. 1 removably held in the sleeve?

A. Yes, sir.

51 x-Q. Is the reproducing point in Edison Reproducer No. 1 adapted to be removably held in the sleeve?

A. Yes, sir.

52 x-Q. Do you find that the Exhibit Edison Reproducer No. 1 has embodied in it all of the elements of all of the claims you have referred to in the three pat- 218
ents in suit in connection with your discussion on Exhibit Fletcher Reproducers?

A. Yes, sir.

53 x-Q. And combined in the same way and for the same purpose as you have found them in Exhibit Fletcher Reproducers?

A. Yes, sir.

Adjourned to Monday, November 4, 1901, at 11 A. M., at the same place. 219

NOVEMBER 4, 1901.

Met pursuant to adjournment.

Present—Counsel as before.

RE-DIRECT EXAMINATION OF MR. COLEMAN BY MR. DYER:

54 Re-d. Q. Do you wish to make any correction of your testimony?

A. In regard to the details of construction of the Fletcher reproducers which have been called to my at- 220
tention in the cross-examination, it is possible that such details as details may be patentable, and a patent may actually be obtained upon them; but that does not alter my opinion that the inventions of the patents in suit are embodied in the structures of the Exhibit Fletcher Reproducers.

Signature and certificate waived.

Complainant's counsel gives defendant's counsel notice that the *prima facie* case for the complainant is closed.

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DECEMBER 31, 1901.

Met pursuant to agreement.

Present—Counsel as before.

Defendant's counsel gives notice that since the facts presented by complainant's *prima facie* case include those upon which defendant will rely for his defense,
222 the defendant will take no testimony.

To simplify the record, the following stipulation is made:

Defendant admits the incorporation of the complainant, the grant of the three patents in suit, and the title of the complainant thereto, as set forth in the bill of complaint.

In accordance with this stipulation, and to reduce cost of printing, the defendant consents to the withdrawal from evidence by the complainant of the follow-
223 ing exhibits:

" Complainant's Exhibit Assignment No. 1,"
" Complainant's Exhibit Assignment No. 2,"
" Complainant's Exhibit Assignment No. 3,"
" Complainant's Exhibit Assignment No. 4,"
" Complainant's Exhibit Assignment No. 5,"
" Complainant's Exhibit Certificate of Incorporation of National Phonograph Company;"

also to the substitution of printed Patent Office copies of the specifications and drawings of the patents in
224 suit, Nos. 430,278, 397,280, 484,584 in place of " Complainant's Exhibit Patent No. 430,278 in Suit," " Complainant's Exhibit Patent No. 397,280 in Suit," and " Complainant's Exhibit Patent No. 484,584 in Suit."

Complainant hereby make the withdrawals from evidence and the substitution referred to in the consent just given by defendant.

Complainant agrees to print with its record and at its expense the defendant's answer and " Defendant's Exhibit Douglas Circular."

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(No Model.)

T. A. EDISON.

PHONOGRAPH.

No. 430,278. Patented June 17, 1890.

FIG. 1.

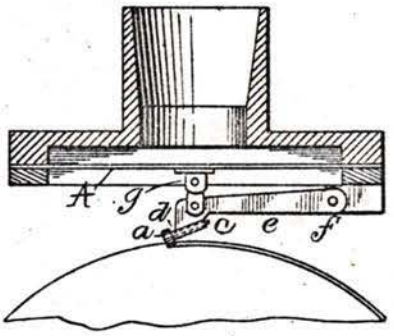

FIG. 2.

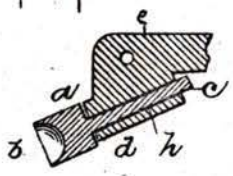

FIG. 3.

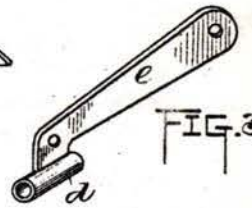

FIG. 4.

FIG. 5.

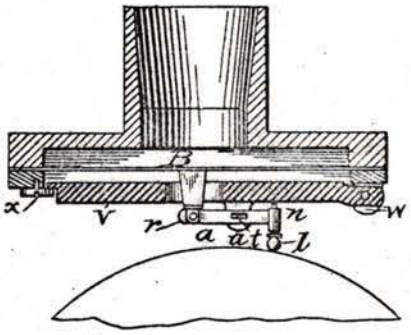

FIG. 6.

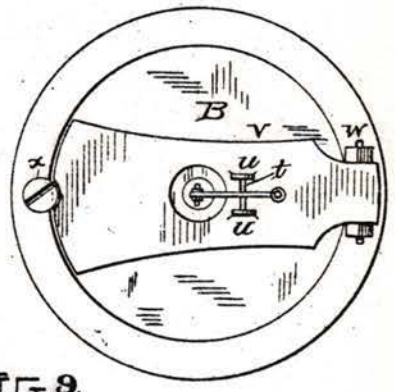

FIG. 7.

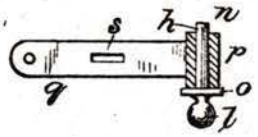

FIG. 9.

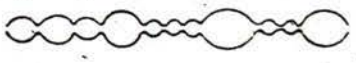

FIG. 8.

Witnesses
E. C. Rowland,
William Pelz

Inventor
Thomas A. Edison
By his Attorneys
Geo. Gray

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UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF LLEWELLYN PARK, NEW JERSEY.

PHONOGRAPH.

SPECIFICATION forming part of Letters Patent No. 430,278, dated June 17, 1890.

Application filed April 10, 1889. Serial No. 306,670. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in Phonographs, (Case No. 833,) of which the following is a specification.

This invention relates to the recording and reproducing points of the phonograph, and has for its objects such an improvement in the form and construction of such devices and in the manner of arranging and supporting the same as, in the first place, to materially improve the character of the sounds produced by the instrument, so as to make them more accurately reproduce the sound-vibrations communicated to the recorder than has heretofore been found possible; secondly, to make the instrument of a less delicate character and more readily manipulated and adjusted by inexperienced persons, and, thirdly, to enable the recording-point to be used for a longer period of time without having to be sharpened or reground or replaced by another.

One feature of my invention consists in the use of a recording-point having a cutting-edge, which is a portion of the edge of a cylinder and forms a gouging-edge, or one which cuts a rounded groove, so that the indentations due to the movements of such point are circular and with curved sides sloping to the center instead of square, and with straight sides, such as are produced by the straight-edged cutting-points which have heretofore been used. I prefer to employ a recording-point whose end is formed into a complete circular edge—that is to say, the end of a cylindrical head is cupped or hollowed out so as to produce a thin circular cutter, so that when one part of the edge becomes worn or dulled the stem may be turned and a different part of the circumference or a new curved cutting-edge is brought into position to operate on the phonogram-blank. To readily accomplish this and also to produce a means of holding the recording-point which shall enable the latter to be readily removed and easily replaced in position by unskilled persons, I provide the point with a shank which is inserted into a socket and held therein removably, preferably by means of a little cement, which can be readily softened by heat, such as a small quantity of shellac. I prefer to support the reproducing-point in the same way, so that it also can be readily removed and replaced when necessary. I employ, also, a reproducing-point having a convex circular bearing-surface—that is to say, a bearing-surface which is the surface of a portion of a sphere. I prefer to employ as a reproducing-point a ball or sphere at the end of a suitable stem. This is supported so that it has a slight movement laterally of the record, and when traveling in the circular depressions formed by the recording-point it fits such depressions, and even if the lever which carries it is out of line with the record, so that the ball does not stand vertically in the record, or if it bears against the curved sides of the depressions, it reproduces the vibrations with the same exactness. The effect of the weight of the reproducing-point and attached parts is such, however, that the point always tends to go to the bottom or center of a depression. With the curved recording-point the whole depression forms the record of the sound-wave, and not only the bottom of it as with a straight recording-point, so that if the spherical reproducer touches the surface of the depression at any point it gives an accurate reproduction.

If a straight-sided reproducing-point gets out of line or tilted laterally, it does not reproduce accurately, and with straight-sided depressions if the reproducing-point bears against the sides it does not reproduce perfectly and it cuts through the sides and scrapes against them so as to produce imperfect articulation and injure the record itself.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a section of the case and mouth-piece of the recorder with the recording-point and attached parts shown in elevation and with the point itself on an enlarged scale; Fig. 2, a longitudinal section of the recording-point and holder therefor; Fig. 3, a perspective view of the holder and the lever which carries it; Fig. 4, a perspective view of a modified form of recording-point; Fig. 5, a

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view of the reproducer, similar to Fig. 1; Fig. 6, a bottom view of the reproducer; Fig. 7, a side elevation of the reproducing-point and the parts which hold and support it, the tubular holder being shown in vertical section; Fig. 8, a view of a modified form of reproducing-point; and Fig. 9, an illustration of the form of the record produced by the arc-shaped recording-point, the view being of the character of a plan view.

The recording-point consists, preferably, of a cylindrical piece *a*, whose end is hollowed or cupped out, as illustrated in Fig. 2, so that a very fine and sharp circular edge *b* is formed. From the part *a*, which is the head of the recording-tool, a shank *c* extends, which is preferably round, and which enters a tubular holder *d*, attached by soldering or otherwise to the lower side of the usual lever *e*, pivoted at *f* on the rim of the reproducer, and connected at *g* with the center of the diaphragm A. Preferably the shank *c* is cemented in the holder *d* by the application of a little shellac or other suitable material *h*, which can readily be softened by heating it; but instead of this the secure removable attachment of the shank in the sleeve may be attained by suitable mechanical holding devices of various kinds, as will readily be seen.

It will be seen that only the lower portion of the circular tool meets the surface of the phonogram-blank, so that the cutting-edge in use at any time is shaped as the arc of a circle whose center is outside of the recording-surface. The circle of the cutting-edge is in practice exceedingly small, being necessarily exaggerated for illustration in the drawings. For a phonograph which has one hundred threads to the inch on its feed-screw, I prefer to make the diameter of the circular cutting-tool about forty-thousandths of an inch. It is of course not necessary for the production of the peculiar character of record desired that the edge shall be a complete circle. It may be a semi-circle or other portion of a circle, as illustrated in Fig. 4, in which the head *i* is formed at its lower side only with a cutting-edge *k*, shaped as the arc of a circle whose center is outside the recording-surface and provided like the other with a shank *c* for insertion in the holder. But by making it circular I provide several curved cutting-edges—two or more—and I enable the same recording-point to be used for a much longer time without having to be replaced or sharpened, for when any portion of the edge has been used long enough to become worn or dulled the cement in the holder may be softened by the application of a low degree of heat and the shank turned in the holder or withdrawn and inserted in a different position, so as to bring a fresh arc-shaped cutting-edge into operative position, and this may be repeated several times before the whole circumference has been used. It will be seen that this is an operation which does not require especially skillful manipulation, but can readily be performed by any one, and this is an important advantage because the phonograph must necessarily be placed usually in the hands of unskilled and inexpert persons. The advantages of the pecular form of holder are, however, not confined to its use with the circular cutting-edge, for this evidently is a desirable form of holder for recording and reproducing points of any character when the same are provided with shanks or extensions capable of being inserted and held in the holder, since it enables such recording or reproducing points to be readily removed and replaced by any one without the exercise of any especial skill or knowledge and without any delicate adjustment, the parts being so arranged that when the head or other enlarged portion meets the holding-sleeve, the point is in the proper position for operation. It is evident, also, that the holding-sleeve and shank are not necessarily round in cross-section, since the same may readily be made square or of other polygonal shape. Of course in this case the shank cannot be turned in the sleeve; but it can readily be withdrawn, turned, and replaced in a new position.

The character of the record produced by the curved or arc-shaped cutting recording-tool is indicated in Fig. 9. It will be seen that such record takes the form of a series of circular pits or depressions whose walls curve toward the center or bottom point, and that the width of such depressions is in proportion to their depth, and also that every portion of each depression contains the record of the sound-wave, so that if the reproducer enters the depression and touches at any point it will receive the required movement corresponding to the impressed sound-wave.

The head of the reproducing-point is preferably a ball or sphere *l*, but it may be only a portion *m* of the sphere, as illustrated in Fig. 8. Such head preferably has a shank *n*, provided with a flange *o*, and such shank enters the holding-sleeve *p* until the flange meets the holder and is secured preferably in the same manner as hereinbefore described with reference to the recording-point—that is to say, by a small quantity of shellac or similar cement *h*, or screwed in.

The holder *p* is attached to or made in one piece with a lever *q*, which is connected at *r* in the usual manner by a hinge with the center of the reproducing-diaphragm B. The lever *q* has a slot *s*, and through such slot passes a pin *t*, extending between lugs *u*, which depend from a plate *v*, pivoted at *w* on the rim of the reproducer and kept from falling out of place by the head *x* of the screw on the opposite side of the rim from the pivot. The plate *v* forms a weight which bears on the reproducing-point and tends to force the same always to the bottom of the recorded indentations, the slot *s* allowing a slight lateral rocking movement of the reproducing-point so that if the lever is out of line with the record the point itself can rock into the

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required position, and its having a rounded bearing-surface makes it immaterial whether it stands straight in the depression or is inclined toward one side thereof. The weight *v* also forms a retarding device, such as is described and claimed in my patent, No. 397,280, dated February 5, 1889, since it does not move under the quick vibrations communicated to the reproducing-point by the sound-record, but under slow movements due to irregularities or inaccuracies of the surface of the phonogram or eccentric movements of rotation it yields and permits the reproducing-point to conform to such irregularities.

What I claim is—

1. In a phonograph, the combination, with a diaphragm, of a recording-point carried thereby having a curved cutting-edge, substantially as set forth.

2. In a phonograph, the combination, with a diaphragm, of a recording-point carried thereby having a circular cutting-edge, substantially as set forth.

3. In a phonograph, the combination, with a record-surface, of a recording-point having a curved cutting-edge and entering said record-surface in an oblique direction, substantially as set forth.

4. In a phonograph, the combination of a cylindrical phonogram-blank, a diaphragm, and a recording-point carried by the diaphragm having a curved cutting-edge, substantially as set forth.

5. In a phonograph, a recording-point having two or more cutting-edges, in combination with a holder holding such point normally in a fixed position, and in which such position may be changed to bring such cutting-edges successively into operating position, substantially as set forth.

6. In a phonograph, a recording-point having two or more arc-shaped cutting-edges, in combination with a holder holding said point normally in a fixed position, and in which the position of the point may be changed to bring such edges successively into operating position, substantially as set forth.

7. In a phonograph, a recording-point having a circular edge, in combination with a holder holding such point normally in a fixed position, and in which the position of the point may be changed, substantially as set forth.

8. In a phonograph, a recording-point having two or more cutting-edges, in combination with a holder in which the point may be turned to bring such cutting-edges successively into operating position, substantially as set forth.

9. In a phonograph, the combination of a recording or reproducing point having a shank or extension, and a sleeve for holding the same, substantially as set forth.

10. In a phonograph, the combination, with a holding-sleeve, of a recording or reproducing point having a shank, and an enlarged portion meeting said sleeve when the shank is inserted therein, substantially as set forth.

11. In a phonograph, a reproducing-point whose bearing-surface is the surface of a portion of a sphere, substantially as set forth.

12. In a phonograph, a spherical reproducing-point, substantially as set forth.

13. A sound-record consisting of circular indentations or depressions having rounded sides and corresponding to the sound-waves, substantially as set forth.

14. A sound-record consisting of circular indentations or depressions having rounded sides and corresponding to the sound-waves, in combination with a diaphragm and reproducing-point whose bearing-surface is the surface of a portion of a sphere, substantially as set forth.

15. In a phonograph, a reproducing-point pivoted so as to have a lateral movement, in combination with a weight bearing thereon, substantially as set forth.

16. In a phonograph, a reproducing-point having a bearing-surface which is the surface of a portion of a sphere and pivoted so as to have a lateral movement, in combination with a weight bearing thereon, substantially as set forth.

17. In a phonograph, a reproducing-point having a bearing-surface which is the surface of a portion of a sphere and pivoted so as to have a lateral movement, substantially as set forth.

18. In a phonograph, a laterally-rocking spherical reproducing-point, in combination with a weight bearing thereon, substantially as set forth.

19. A sound-record consisting of circular indentations or depressions corresponding to sound-waves, in combination with a reproducing-point whose bearing-surface is the surface of a portion of a sphere, and which is pivoted so as to have a lateral movement, substantially as set forth.

20. In a phonograph, the combination of the reproducing-point, the lever carrying the same and connected with the diaphragm, the hinged plate, and the hinge-connection between said lever and said plate, substantially as set forth.

21. In a phonograph, the combination of the reproducing-point, the lever carrying the same and connected with the diaphragm and having a longitudinal slot, the hinged plate, the lugs on said plate, and the pin connecting said lugs and passing through said slot, substantially as set forth.

22. In a phonograph, a recording-point having a cylindrical head provided with a cutting-edge and a shank or extension, substantially as set forth.

23. In a phonograph, a recording-point having a cylindrical head with its end hollowed to form a circular cutting-edge, substantially as set forth.

24. In a phonograph, a recording-point hav-

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ing a cylindrical head with its end hollowed to form a circular cutting-edge and a shank or contracted extension, substantially as set forth.

25. In a phonograph, a reproducing-point having a head whose bearing-surface is a portion of the surface of a sphere, and a shank or contracted extension, substantially as set forth.

26. In a phonograph, a reproducing-point having a spherical head and a contracted shank, substantially as set forth.

27. In a phonograph, a reproducing-point having a spherical head, a contracted shank, and a flange on said shank, substantially as set forth.

28. In a phonograph, the combination, with a diaphragm, of a sleeve connected with said diaphragm so as to receive motion therefrom and a recording or reproducing point removably and rigidly held in said sleeve, substantially as set forth.

29. In a phonograph, the combination of a diaphragm, a lever connected therewith, a sleeve carried by said lever, and a recording or reproducing point removably held in said sleeve, substantially as set forth.

30. In a phonograph, the combination of a diaphragm, a lever connected therewith, a sleeve carried by said lever, and a recording or reproducing point having a head and a shank or contracted extension removably held in said sleeve, substantially as set forth.

31. In a phonograph, a recording or reproducing point in combination with a holding-sleeve and a cement, such as will be softened by heat, holding said point in said sleeve, substantially as set forth.

32. In a phonograph, the combination of a recording-point having a curved cutting-edge and a reproducing-point having a rounded bearing-surface, substantially as set forth.

This specification signed and witnessed this 8th day of April, 1889.

THOMAS A. EDISON.

Witnesses:
WILLIAM PELZER,
D. H. DRISCOLL.

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(No Model.)

T. A. EDISON.

PHONOGRAPH RECORDER AND REPRODUCER.

No. 397,280. Patented Feb. 5, 1889.

FIG. 1.

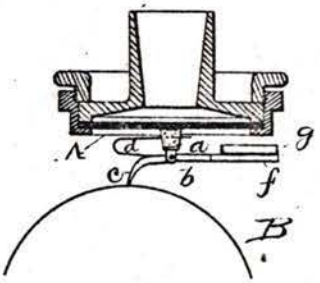


FIG. 2

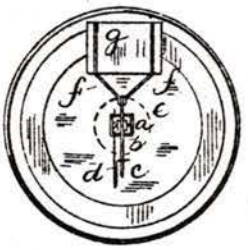


FIG. 3.

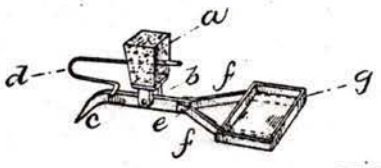


FIG. 6.

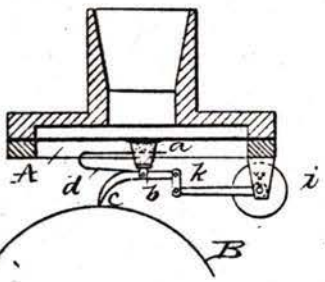


FIG. 5

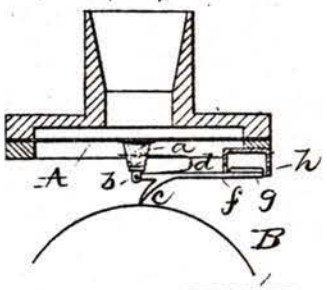


FIG. 7

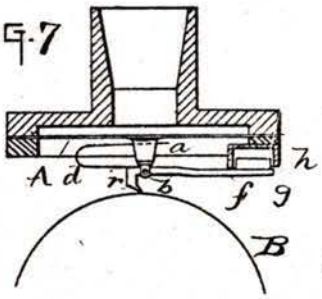


FIG. 4

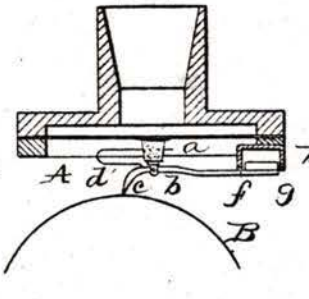
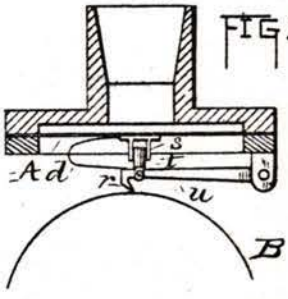


FIG. 8.



Witnesses.
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William Pelzer

Inventor
Thomas A. Edison
By his Attorneys
Geo. H. Lucy

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UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF LLEWELLYN PARK, NEW JERSEY.

PHONOGRAPH RECORDER AND REPRODUCER.

SPECIFICATION forming part of Letters Patent No. 397,280, dated February 5, 1889.

Application filed September 27, 1888. Serial No. 286,552. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, of Llewellyn Park, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in Phonographs, (Case No. 804,) of which the following is a specification.

My invention relates to the recording and reproducing devices of the phonograph; and my object is to enable such devices to work independently of irregularities in the surface of the phonogram. Sometimes in the manufacture of phonogram-cylinders irregularities or eccentricities occur in the formation of the surface, and sometimes the cylinders become warped after manufacture, and if provision is not made to prevent it such irregularities will occasion oscillations of the reproducing-point and the diaphragm, which will interfere with the recording or reproducing of the sound. This is obviated by my invention, which consists, mainly, in so supporting the recording or the reproducing point that it is capable of movement independently of the diaphragm, but that such independent movement is retarded so that it does not occur with the rapid and minute vibrations of the sound-record, but only with the slower and more extensive vibrations which are produced by irregularities in the shape of the phonogram. The sound-vibrations have to-and-fro movements of great rapidity and large number per second, and these cannot move the retarding device, so that the same acts as though it were fixed, and all the energy due to the sound-waves or the sound-record is communicated directly from the diaphragm to the recording-point or from the reproducing-point to the diaphragm, while the movements given to such points by eccentricities of the phonogram, being long and slow, overcome the tendency to inaction of the retarding device, and so permit the movement independent of the diaphragm. This makes it possible to record on or reproduce from a very irregular revolving phonogram—even one which is oval in shape.

In carrying my invention into effect I support the recording or reproducing point pivotally, and I attach to such point a retarding device, which is preferably a fan or piston, the inertia and retardation of which retarding device are such that it will not be moved by the sound-vibrations, but will be moved by the slower movements referred to, so that the latter are not communicated to the diaphragm; but under the quick sound-vibrations the connection of the reproducing-point to the diaphragm is practically a rigid one. Instead of a fan I may employ a weight, preferably in the form of a wheel; but the fan or piston is found to be preferable.

My invention is illustrated in the accompanying drawings.

Figures 1 to 6 illustrate reproducers. Fig. 1 is a cross-section of the ear-piece and side view of the reproducing-point and the devices connected therewith; Fig. 2, a top view of the reproducing-point and the retarding device; Fig. 3, a perspective view of the same. Fig. 4 shows a modified arrangement of the retarding device; Fig. 5, a different mode of pivoting the reproducing-point; and Fig. 6 illustrates the use of a wheel as a retarding device. Figs. 7 and 8 show recorders. Fig. 7 is a cross-section of the mouth-piece and side view of the recording-point and retarding device, and Fig. 8 shows in section another form of retarding device.

Referring first to Figs. 1 to 6, A represents the diaphragm, and B a portion of the surface of the cylinder containing the sound-record. A small cork, *a*, is attached to the center of the diaphragm, and from the cork project small lugs *b*, on which the reproducing-point *c* is pivoted. Lugs *b* extend from a plate which is secured to the end of the cork *a* by suitable cement—such as melted shellac—and the cork itself is similarly cemented to the diaphragm. A fine spring, *d*, is cemented in a slit in the cork and bears upon the reproducing-point, so as to hold the same against the phonogram. The arm which terminates in the reproducing-point extends back past the pivot, and has soldered to it at *e* two prongs of thin metal, *f*, to which is attached a piece of thin mica, *g*, which preferably has side ribs, so as to form a trough. This forms a fan or vane, and I have found that such a retarding device is practically rigid under the minute vibrations due to the sound-record, so that such vibrations are communicated directly through the cork *a* to the diaphragm; but when the reproducing-point passes over

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any serious irregularity in the surface, such as would injure the reproduction of sound, the slow movement thus produced overcomes the inertia of the fan, and the reproducing-lever rocks on its pivot, being kept pressed against the surface by the spring, so that such an irregularity is taken up by the reproducing-arm itself and does not communicate motion to the diaphragm. The pressure of the spring is very light and merely counterbalances the weight of the fan, so as to overcome any tendency of the point to leave the surface. It will be seen that I connect the spring with the diaphragm. I do this to prevent any loss of motion through the spring. If it were connected to the rim, any movement or energy which might be communicated to it would pass to the rim and be lost; but where the spring is joined to the diaphragm any motion communicated to it is given to the diaphragm and aids the amplitude of vibration.

In the form shown in Fig. 4 I inclose the fan in a chamber, *h*, secured to the arm of the diaphragm, so as to increase the resistance to the motion of the fan.

In Fig. 5 the reproducing-lever is pivoted at its outer end to the cork on the diaphragm, and the spring projects from said cork and lies upon said lever.

In the form shown in Fig. 6 a small wheel, *i*, is supported in bearings below the rim of the diaphragm, and a link-connection is made at *k* between the reproducing-lever and the shaft of said wheel. In this case the weight of the wheel retards the movement of the lever on its pivot under the sound-vibrations in the same way as the fan in the other form; but under the slow motions of the irregularities in the cylinder the weight of the wheel is overcome, so that it turns and allows the lever to rock on its pivot. Any of these forms may be readily applied to recorders.

Fig. 7 shows an arrangement precisely like that of Fig. 5, *r* being the recording-point.

Fig. 8 shows a different arrangement, which is also applicable to reproducers. A small hollow cylinder or dash-pot, *s*, is attached to the center of the diaphragm, and in this works a plunger or piston, *t*, attached to lever *u*, which carries the recording-point *r*. The lever *u* is pivoted below the rim of the mouth-piece, and the fine spring attached at the center of the diaphragm bears at the free end of said lever. The rapid and minute sound-vibrations do not move the dash-pot upon the piston, (or vice versa in a reproducer;) but slow movements due to irregularities move the piston and so cause the desired movement of the point independent of the diaphragm.

It will be seen that in all these instances a retarding device is used whose inertia is such as will not be overcome by the normal quick motion of the recording or reproducing point, but will permit it to move under the slower motions due to defects in the cylinder-surface.

What I claim is—

1. In a recorder or reproducer for phonographs, the combination, with the diaphragm, of the recording or reproducing point connected therewith and capable of a retarded movement independent of the movement of the diaphragm, substantially as set forth.

2. In a recorder or reproducer for phonographs, the combination, with the diaphragm, of the recording or reproducing point connected with said diaphragm and capable of movement independent thereof, and provided with a retarding device for controlling such independent movement, substantially as set forth.

3. In a recorder or reproducer for phonographs, the combination, with the diaphragm, of the recording or reproducing point pivotally connected therewith, so as to have a movement independent thereof, and provided with a retarding device controlling such movement, substantially as set forth.

4. In a recorder or reproducer for phonographs, the combination, with the diaphragm, of the recording or reproducing point connected therewith and capable of a retarded movement independent of the diaphragm, and a spring for holding said point against the sound-record, substantially as set forth.

5. In a recorder or reproducer for phonographs, the combination, with the diaphragm, of the recording or reproducing point connected therewith and capable of a retarded movement independent of the diaphragm, and a spring connected with said diaphragm for holding said point against the sound-record, substantially as set forth.

6. In a recorder or reproducer for phonographs, the combination, with the diaphragm, of the recording or reproducing point pivotally connected therewith, a spring for holding said point against the sound-record, and a retarding device for controlling the movement of said point on its pivot, substantially as set forth.

7. In a recorder or reproducer for phonographs, the combination, with the diaphragm, of the recording or reproducing point pivotally connected therewith, a spring connected with the diaphragm for holding said point against the sound-record, and a retarding device for controlling the movement of said point on its pivot, substantially as set forth.

8. In a recorder or reproducer for phonographs, the combination, with the diaphragm, of a lever pivoted upon said diaphragm so as to have a movement independent thereof, and carrying the recording or reproducing point, and a retarding device connected with said lever, substantially as set forth.

9. In a recorder or reproducer for phonographs, the combination, with the diaphragm, of a lever pivoted thereto and carrying the recording or reproducing point, and a fan attached to said lever, substantially as set forth.

10. In a recorder or reproducer for phonographs, the combination, with the diaphragm,

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of the recording or reproducing point connected with said diaphragm and capable of movement independent thereof, and a fan or equivalent device for retarding such movement, substantially as set forth.

11. In a recorder or reproducer for phonographs, the combination, with the diaphragm, of a lever pivoted thereto and carrying the recording or reproducing point, a fan attached to said lever, and a spring for holding said point against the sound-record, substantially as set forth.

This specification signed and witnessed this 19th day of September, 1888.

THOS. A. EDISON

Witnesses:
WILLIAM PELZER,
A. W KIDDLE.

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T. A. EDISON.

PHONOGRAPH REPRODUCER.

No. 484,584. Patented Oct. 18, 1892.

Fig. 1.

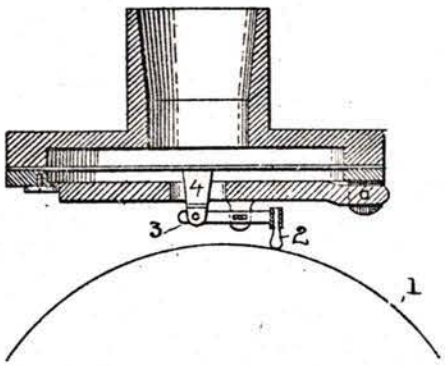
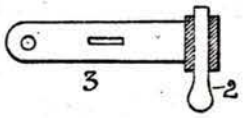


Fig. 2.



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Charles M. Catlin.

Inventor
T. A. Edison.
By his Attorneys
Dyer & Seely.

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UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF LLEWELLYN PARK, NEW JERSEY.

PHONOGRAPH-REPRODUCER.

SPECIFICATION forming part of Letters Patent No. 484,584, dated October 18, 1892.

Application filed May 27, 1890. Renewed March 30, 1892. Serial No. 427,013. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in Phonograph-Reproducers, (Case No. 862,) of which the following is a specification.

In practice it is found that after phonographs have been used for a time the articulation of the speech reproduced is not so smooth and clear as when the phonograph was first put in use. While the articulation is sufficiently good to be intelligible, the false vibrations are such as to cause unpleasant and some times confusing noises at the reproducer. I attribute this to the fact that by continued use the cutting-edge of the recorder and of the turning-off tool and the bearing point or end of the reproducer become roughened. The recording-surface of the phonogram-blank is ordinarily of wax or a stearate or hard metallic soap or other wax-like material or composition, and it would naturally be supposed that a tool of steel of the best quality would be entirely satisfactory for use in connection with such a comparatively-soft substance. I have, however, found that such tools are subject to the objection above set forth. This is due to the chemical action of acids or other substances found in the wax or composition of which the phonogram-blank is made, and to the dulling and roughening action of fine particles of silica or other hard material which become mixed with the wax during the manufacture of the blank or which become lodged on the surface thereof. After many trials I have found that hard crystals, earthy oxides, and gems—such, for example, as sapphire, quartz, or garnet, all of which may be termed "jewels"—co-operate in the most effective manner with the wax-like phonogram-blank, since the acids thereof do not attack them, they are not rusted by moisture, and they are adapted to withstand the dulling action of the hard particles referred to.

The present invention consists, in a reproducer for phonographs, of a jewel possessing the characteristics above mentioned.

The recorder and turning-off tool are not claimed herein, since they form the subject-matter of an application filed by me on even date herewith.

In the accompanying drawings, which illustrate the invention, Figure 1 is a view of the reproducer bearing on the surface of a phonogram-blank. Fig. 2 is a detached view, on a larger scale, of the reproducer.

1 is the surface of the phonogram-blank.

2 is the jewel reproducing-point, the bearing end of which is preferably spherical or rounded. This jewel is held in any suitable manner at one end of the pivoted lever 3, the opposite end of which is connected to the phonograph-diaphragm by means of the post 4.

Reproducing-points made as above described not only are more durable than those of metal, but they move more readily over the record and do not introduce false vibrations into sounds reproduced.

Having thus described my invention, what I claim is—

1. The combination, in a phonograph, with a phonograph-blank of wax-like material, of a jewel reproducer, substantially as described.

2. The combination, in a phonograph, with the phonogram-blank, of a rounded jewel reproducer, substantially as described.

3. A reproducer or bearing-point for phonographs, consisting of a jewel not affected by chemicals or chemical action of the wax-like material of the phonogram-blank, substantially as described.

This specification signed and witnessed this 24th day of May, 1890.

THOS. A. EDISON.

Witnesses:
A. O. TATE,
THOMAS MAGUIRE.

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DEFENDANT'S EXHIBIT DOUGLAS CIRCULAR.

The Fletcher Improvement

(Patent Applied For)

FOR several years Mr. Elmer Fletcher, the inventor of this device, has devoted constant study to the improvement of phonographic sound reproduction. About a year ago the first improvements were placed on sale; they were well received, although the first ones were crude by comparison with the present product. Many changes have been made, all in the line of bettering what was at first considered well-nigh perfect.

The Object of the invention is, first, to make the *most natural reproduction* of sound or voice with perfect articulation; second, to do away with the metallic tone and scratching that invariably accompanies the ordinary speaker or reproducer, and to prevent blasting or blare.

The Results that followed were most pleasing—heavier, full round tones were obtained; sounds were carried further and were more distinct than with the usual speaker, and all blasting prevented. The pleasure derived from Phonograph reproduction increased 100 per cent.

The Phonograph is not doing its best unless fitted with the *Fletcher Improvement.*

Most Pleasures of Life come through the ear. The perfection of pleasure comes by using the *Fletcher Improvement.*

The Illustrations will show the general make-up of the Improvement—which consists of the following changes or additions to the Edison Speaker:

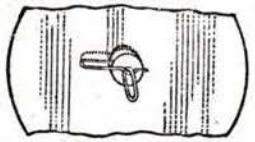
New improved tube plate
New improved hinge on weight
New improved sapphire arm and adjustment
New improved cross head and link
New perforated plate or cap

and several minor items that are, however, of importance in the general result. All points of improvement are protected by the claims of patent.

How to Obtain Improvements. Send your Edison Automatic Speaker to us by Registered Mail or Express—charges prepaid; attach tag with name and address plainly written; send letter of advice with P. O. Money Order for $3.00. On receipt of speaker and money order, speaker will be fitted with the improvement and returned.

OLD METHOD REVERSED

The most marked improvement over the old speaker is the Tube Plate and method of hanging the sapphire arm. The old way—supporting the arm in the centre, between link and sapphire, causing a downward pull on the glass diaphragm—tended to always keep the glass under tension: The improved method supports the sapphire arm at one end; the link being at the other with the sapphire in the middle causes an upward pressure on the glass, when sapphire ball is resting on cylinder, and does not necessitate first overcoming the tension on the glass before sound waves are produced. In other words, transmitting sound vibrations with very little loss of energy.



This illustration shows the New Cross-head and link—a radical departure from old methods. By this method of connection between Sapphire arm and Diaphragm glass all lost motion is eliminated, a most essential point in Phonograph reproduction.

EDISON RECORDERS

can be altered to "Fletcherized" Automatic Speakers. If you prefer to keep your present speaker, send your Recorder and P. O. Money Order for $3.50.

IMPROVEMENTS WILL NOT be sent out except attached to speakers. It is of the utmost importance that the adjustment be perfectly made, and in order to insure satisfactory results we must do the work.

NONE ARE GENUINE WITHOUT THIS NAME ON TUBE PLATE

"THE FLETCHER."

(Patent applied for)

Douglas & Co.

SELLING AGENTS

10 West 22d St., New York

HOW TO IMPROVE PHONOGRAPH SOUND REPRODUCTION

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United States Circuit Court,

EASTERN DISTRICT OF NEW YORK.

NATIONAL PHONOGRAPH COMPANY,
Complainant,

vs.

ELMER FLETCHER,
Defendant.

IN EQUITY.

BRIEF FOR COMPLAINANT.

DYER, EDMONDS & DYER,
Solicitors for Complainant.

RICHARD N. DYER,
Of Counsel.

C. G. Burgoyne, Walker and Centre Streets, N. Y.

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United States Circuit Court,

EASTERN DISTRICT OF NEW YORK.

NATIONAL PHONOGRAPH COMPANY, Complainant, vs. ELMER FLETCHER, Defendant.	In Equity.

BRIEF FOR COMPLAINANT ON FINAL HEARING.

The suit is brought on three patents granted on inventions of Thomas A. Edison relating to phonograph reproducers. The complainant is the owner of these patents. The defendant is charged with infringing these patents by the manufacture, sale and use of phonograph reproducers embodying the inventions described and claimed therein. The fact that the defendant's phonograph reproducers, *as complete struetures*, infringe certain specified claims of the patents in suit is established by complainant's expert, Mr. Coleman, and is not disputed by the defendant. Nor is the validity of these patents in dispute.

Defendant's whole case rests on a denial of infringement, on the theory that what he does is simply to take the complainant's reproducers and *add his improvements* to them.

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This defense appears in the answer in the following language [italics ours] (R., fols. 52–54):

"* * * but, on the contrary, the defendant affirms that *he has placed upon the market* certain phonographic reproducers, which reproducers were *purchased by the defendant* from the complainant or its duly authorized agents, [or] licensees or from parties who had obtained the same from the complainant; and that, so far as the reproducers *placed upon the market by the defendant* are concerned, which embody in any way any construction devised by the complainant, or its agents or employees, or to which it is in any way entitled, said reproducers embodying any such improvements were made by said complainant, its agents or licensees, and sold by said complainant, its agents or licensees, in the open market for public use, and were thus obtained by defendant. That defendant, *after such purchase* of reproducers, *added thereto certain improvements* and constructions of his own invention and device, which greatly improved the said reproducers, and *thereupon sold the same as thus improved;* and that, so far as the additional features or changes in said reproducers by defendant are concerned, they are in no way embodied in or constitute any infringement of any of the claims of any of the aforesaid Letters Patent cited in said bill of complaint."

The purpose of this defense is undoubtedly to put defendant in the same position as the defendant in *Thomson-Houston Co. vs. Kelsey Co.* (75 F. R., 1005), where the defendant sold a *mere support* (a trolley base) for one of the elements of a general combination (a trolley system of electric street railways) purchased from the complainant to take the place of worn-out or broken trolley bases in the original equipment, or to take the place of complainant's *higher* trolley bases which could not be used on account of low bridges crossing the track.

This case, however, is not the Trolley Base case. Defendant's acts in this case can only be justified by an interpretation of the law which will give him "authority to reconstruct or rebuild a combination which has been sold by the complainant," an interpretation which the Court in the Trolley Base case was careful to specifically stamp with its disapprovel (75 F. R., 1010). This is the view of defendant's acts most favorable to him. The record supports, we believe, the assertion that defendant's acts are a *mere subterfuge* to enable him to market his own reproducers in competition with Edi-

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son's reproducers with a *colorable argument* on the question of the infringement of Edison's patents. He takes the old Edison reproducers and, retaining the mere shell, substitutes his own devices for the vital parts, taking care, however, to retain the part which bears the legend "Sold by Nat'l Phono. Co." It is charitable to speak of this as "reconstructing" or "rebuilding" complainant's combination. It is, in fact, a case of straight-out infringement, aggravated by the representation that the infringing product is manufactured by the complainant. We will return to the question of law which the defendant invokes after a further consideration of the facts.

Defendant's Acts were not Authorized by Complainant.

In proving its case, complainant put the defendant on the stand and allowed him to tell his story. He said that before the bringing of this suit his business had been done entirely with Douglas & Company, of New York, who sent him the old Edison reproducers to be "fletcherized," that he returned the reproducers to Douglas & Company after adding his improvements, and that that concern paid him an agreed price for his improvements. On cross-examination by his own counsel, he asserted (R., fols. 121–125) that Douglas & Co. are dealers and jobbers in phonographs and supplies, and "represent" the complainant; that when he first consulted Douglas regarding the handling of his improvements, the conversation took place in the New York office of the complainant; that he believes Douglas was at that time employed by complainant; that just prior to making a contract with Douglas & Co. to sell his improvement, Douglas submitted an Edison reproducer equipped with his improvement to Gilmore, complainant's president, and "met no objection"; and that during all his dealings with Douglas or Douglas & Co. he regarded Douglas "as agent or representative" of complainant. The legal effect of this story (if

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proved) might be to create an implied license to Douglas & Co. and the defendant under the complainant's patents. The answer, however, does not plead such a license. At the time of signing that paper the defendant's view of the facts seems to have been that Douglas was *his* (not complainant's) agent, because Douglas's part of the business, which consisted in *buying* the old Edison devices and *reselling* them after being "fletcherized," is there stated as the defendant's own acts.

This attempt to show that Douglas & Co. were acting for complainant in their dealings with the defendant is, however, only another subterfuge, conceived too late to find a place in the answer. This is made clear by the re-direct examination. It there appears that recently, and since the bringing of this suit (Douglas & Co. having stopped selling his improvement), he has continued to sell his improvement through A. D. Matthews' Sons, of Brooklyn; that Matthews' Sons are complainant's agents *in the same sense* as Douglas & Co. were—namely, only in the sense of being jobbers or sellers of the complainant's products (R., fols. 129–132). It further appears that Douglas & Co. did not limit themselves to handling complainant's product, but also handled materials and supplies made by others and competing with complainant's product (R., fols. 133–137). While defendant professes to believe Douglas was in complainant's employ when he began the negotiations with him, yet he evidently thinks Douglas had left complainant's employ when some three or four weeks later Douglas was running the concern of Douglas & Co. and made the contract with him (R., fols. 137–139). This contract, which covers the business relations between Douglas & Co. and the defendant, evidently furnishes no support for defendant's assertions, because, although called for by complainant, it was not produced (R., fols. 140, 141). The failure to produce this contract, and the omission to call Douglas as a witness, leave defendant's case bare of established facts—unsupported on the proposition of agency, and technical as

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distinguished from equitable on the proposition of permissible replacement of parts in a patented combination. When asked what foundation he had for the statement that Douglas submitted his improvement to complainant's president and met with no objection, the defendant replied that Douglas made the statement to him (R., fol. 139). Even as hearsay, it does not appear what Douglas said to complainant's president or what the latter replied, either as to words or in substance.

The defense of agency or implied license is, therefore, not proved even had it been pleaded; neither is the defendant entitled to any special consideration on account of these matters, since the facts admitted by him make it impossible that he could even have been misled.

Defendant's Infringing Acts.

A phonograph reproducer (or "speaker," as it is commonly called in the trade) is that part of the phonograph which *reproduces* the sound from the "record." The "record" consists of a cylinder of waxlike material upon which the sound waves are impressed by means of a cutting or engraving tool moved by a diaphragm as the surface of the cylinder is rotated in contact with the edge of the cutting tool. The phonograph itself is a machine similar to a miniature screw cutting lathe having a rotating spindle or mandrel which carries the wax cylinder to be cut by the tool, the tool being carried by an arm which has a feed movement lengthwise of the cylinder, so that the tool cuts a spiral groove like a screwthread on the cylinder. The cutting tool being carried by a diaphragm which is vibrated by the sound waves to be recorded, not only cuts this spiral groove or screwthread, but also, by reason of the vibrating movement given it by the diaphragm, radial to the surface of the cylinder, makes the spiral groove of varying depths, corresponding with the sound vibrations. The wax cylinder cut or

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engraved in this manner thus becomes or carries the sound "record." The cutting or engraving tool and the diaphragm and other parts associated with it, form the "recorder." The recorder is a complete structure in itself—a separate article, which is held removably in a ring on the tool-supporting arm of the phonograph. The reproducer, or speaker, is another tool of this miniature lathe. It is not intended to cut the surface, however. On the contrary, it has a rounded or spherical point connected with a diaphragm, which point rubs along, without injuring, the groove cut by the recorder, and being moved in and out by the varying depth of that groove imparts to its diaphragm vibrations similar to those which had actuated the diaphragm of the recorder in making the record. The sound is thereby *reproduced*, *spoken* or given forth.

The reproducer differs essentially from the recorder, therefore, in the form of the tool or point. One cannot be used in place of the other on account of this difference and because one cuts the material and the other does not. Patent No. 430,278 in suit shows, in figures 1, 2 and 4, the form of the recording point, and in figures 5, 7 and 8 the form of the reproducing point, while the record groove is shown in figure 9. These points being made of the jewel "sapphire" under Patent 484,581 in suit, have become known to the trade as "sapphires" or as "recorder sapphire" and "speaker sapphire." Otherwise than in this essential difference in the points or sapphires, the reproducer may be and as manufactured is essentially the same as the recorder. Both are small cylindrical structures—articles of manufacture separate from the main parts of the phonograph, adapted to be removably held in the ring on the supporting arm of the phonograph as tools to perform one or the other function. Each has a floating weight and associated parts connected with the diaphragm and point or sapphire in such manner that the sapphire can move independently of the diaphragm to compensate for any eccentricity in the wax cylinder, but the inertia or fan action of the weight, or both, will be sufficient to cause the

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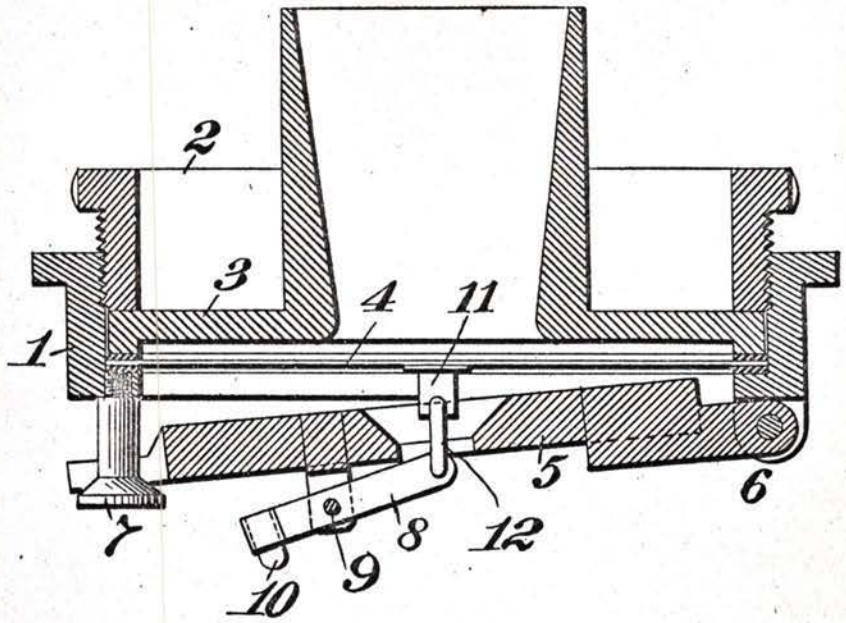
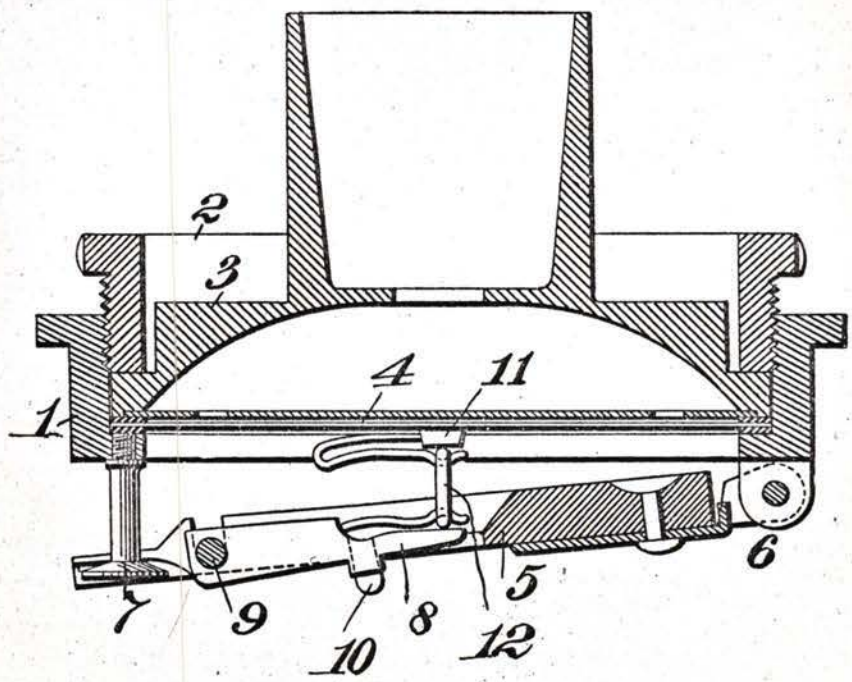
Edison Reproducer



Fletcher Reproducer



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rapid sound vibrations to pass from the diaphragm to the point or *vice versa* as if those two parts were rigidly connected together (see Patent 397,280 in suit). Another difference between a recorder and a reproducer should be noticed : Since the recorder is designed to cut a definite groove, its point or sapphire is held against lateral movement relative to the diaphragm. On the other hand, since the reproducer must follow or " track " this groove, its point is mounted so as to have a sufficient lateral movement independent of the diaphragm to enable it to follow the centre of the record groove, even if the record groove and the feed movement of the phonograph do not exactly coincide (see patent in suit 430,278, claims 15, 16, 17 and 18). This loose lateral movement need be only slight, because the centres of the adjoining turns of the spiral record groove are only one one-hundredth of an inch apart, and the lack of coincidence referred to never exceeds two or three times this distance in the whole length of a record.

On the adjoining sheet are two illustrations, on a scale two and one-half times actual size, showing in section the Edison reproducer and the Fletcher reproducer. For the purposes of this case, a phonograph reproducer, either Edison's or Fletcher's, may be considered as consisting of twelve parts, which are numbered similarly in both illustrations. These parts are :

1. The body ring.
2. The clamping or screw ring.
3. The tube plate.
4. The diaphragm.
5. The weight.
6. The weight hinge.
7. The limiting screw.
8. The sapphire arm.
9. The arm pivot.
10. The sapphire.
11. The cross-head.
12. The link.

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Parts 1 and 2 may be considered as the frame or shell of the reproducer; part 3 is the means for connecting the space above the diaphragm with the tube or horn for conveying the sound waves from the diaphragm to the ear; parts 4 to 12 are the vital operative parts of the reproducer, which are acted on by the sound record and result in the production of sound waves by the diaphragm.

The main operations of the defendant have consisted in taking the Edison reproducer as illustrated and converting or "fletcherizing" it into the Fletcher reproducer as illustrated. Whether in doing this the defendant "reconstructs or rebuilds" complainant's combination, or only makes a permissible substitution of parts, is to be determined in part at least by the extent and character of the changes he makes.

As should be expected, the defendant when examined, at first admitted only making the minimum changes. He retained parts 1, 2, 4, 5 and 10, and substituted his own devices for the other seven parts (R., fols. 72–74). While retaining the Edison weight (part 5), he changed its form materially, as will appear by a comparison of the exhibits "Edison Weight" and "Edison Weight Modified," so that in effect the weight of the Edison reproducer became *simply the raw material* for making the weight of the Fletcher reproducer. Viewed in this way, he retained only four out of the twelve parts. But this is the most favorable case for defendant. In "Fletcher Reproducer No. 1" and others like it he did not even use the Edison weight for raw material, but substituted an entirely new weight (R., fol. 75). In some cases he used new diaphragms (part 4) supplied by Douglas & Co. (R., fols. 110, 111). This reduced the parts retained of the old Edison reproducers to three out of twelve. In some cases he used new sapphires (part 10) supplied by Douglas & Co. (R., fols. 148, 149). This reduced the parts retained of the old Edison devices to two out of twelve. The most unfavorable case for the defendant is therefore the one where out of the twelve parts of

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the Edison device he retained only two—namely, the mere frame or shell of the device (parts 1 and 2). It should be borne in mind that the part 2 carries the legend "Sold by Nat'l Phono. Co." The case most favorable to the defendant is where he retained five out of the twelve parts, using one of them, the Edison weight, however, only as raw material from which to make his own weight.

There is shown by the record another situation still less favorable to the defendant. Besides taking old Edison reproducers and making them over into Fletcher reproducers, he took old Edison *recorders* and turned them into Fletcher *reproducers* (R., fols. 143–145). When completed, the Fletcher reproducers made from Edison recorders were just like the other Fletcher reproducers (R., fol. 146) and infringed to the same extent the patents in suit. In making this metamorphosis, the defendant not only had to make the radical changes in construction referred to, but he also had to change the essential character of the device—from a cutting tool to a rubbing tool, from a recorder which receives sound to a reproducer which emits sound.

The Douglas Circular.

This circular also shows the radical character of the reconstruction to which the Edison instruments were subjected by the defendant. It describes the principal parts of the defendant's device, although it omits to refer to the radical reconstruction of the weight. This and other features of reconstruction, not described, are probably intended to be included in the reference to "several minor items that are, however, of importance in the general result."

The circular also suggests a method of doing business which we have no hesitation in pronouncing fictitious, not followed in fact but set forth in this circular simply to give a colorable argument upon the question of infringement. Under the head of "How to Obtain Improvements," the owner of an Edison reproducer is

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told to send his Edison speaker with a money order for three dollars, when the speaker will be fitted with the improvement and returned. But the circular also says that if he prefers to keep his Edison speaker, he can send his recorder, which will be altered to a "fletcherized" speaker. As a legal question, it is immaterial whether or not the defendant and Douglas & Co. limited themselves to reconstructing Edison reproducers and recorders received directly from the users. The answer of the defendant, which, as we understand it, sets up the joint operations of the defendant and Douglas & Co., says that the Edison reproducers were purchased in the open market and were resold after the improvements were added (R., fol. 53). This is the course of business which was undoubtedly followed. The defendant reconstructed about 1,500 of these Edison instruments, and received them from Douglas & Co. in numbers ranging from one to as many as a hundred at a time (R., fol. 109). He admits that he has no personal knowledge as to where Douglas & Co. got the Edison reproducers, or what they did with them after he rebuilt and returned them (R., fol. 107). Undoubtedly Douglas & Co. gathered in these old instruments from all sources, bought them wherever they could, and sold the reconstructed instruments as regular articles of trade as the answer sets forth. That there was no serious effort to return the same instrument to a user sending in his reproducer for reconstruction, is apparent from the statement of the defendant that in order to effect the reconstruction expeditiously, he had a thousand weights manufactured, but these proving unsatisfactory, he withdrew them from the market (R., fols. 85–88), except possibly twenty-five (R., fol. 112). In using the Edison weight as raw material to make the Fletcher weight, so much work has to be done on it that if this work was done as the instruments were received and the identification of the separate instruments maintained so that they could be returned to the persons from whom they were received, there would necessarily be delays in delivering the reconstructed

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instruments, but if the defendant had a stock of these Fletcher weights on hand, he could apply them to the Edison reproducers without delay. Through Douglas & Co., the defendant attempted to purchase from the complainant the Edison weights separated from the reproducers, but the complainant refused to sell the weights separately (R., fol. 88). Since he had difficulty with the weights which he had manufactured for his purpose, he continued to use the Edison weights as raw material, and undoubtedly any one who wanted a Fletcher reproducer was sold one by Douglas & Co. without going through the motions of supplying an Edison instrument and waiting for that to be "fletcherized" and returned to him.

The law on the right to repair or improve a patented device after its sale by the patentee.

As strong an expression as any of the rule from which flows the right to repair or improve a patented device sold by the patentee is found in *Chaffee vs. Belting Co.*, 22 How., 217–223, as follows:

> "When the patented machine rightfully passes to the hands of the purchaser from the patentee, or from any other person by him authorized to convey it, the machine is no longer within the limits of the monopoly. According to the decision of this court in the cases before mentioned, it then passes outside of the monopoly, and is no longer under the peculiar protection granted to patented rights. By a valid sale and purchase, the patented machine becomes the private individual property of the purchaser, and is no longer protected by the laws of the United States, but by the laws of the state in which it is situated. Hence it is obvious, that if a person legally acquires a title to that which is the subject of letters patent, he may continue to use it until it is worn out, or he may repair it or improve upon it, as he pleases, in the same manner as if dealing with property of any other kind."

This and other expressions of like character in the decisions of the Supreme Court, as in *Adams vs. Burke*, 17 Wall., 453, and *Hobbie vs. Jennison*, 149 U. S., 355, are, however, of a general nature, and were

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made with reference to the interests of a purchaser of a patented device as against an extension of the patent, or with reference to territorial rights. Out of this rule, however, flows the right to repair or improve, upon which the defendant must rely in the present case; yet in no case has the Supreme Court held that this right is absolute and universal, or that it may not be limited by express or implied restrictions entering into the transaction of the sale of the patented machine or device.

The rule as to the right to repair or improve a patented article stated in *Chaffee vs. Belting Co.*, had no application to that case, which was one involving the question of the right to use a patented machine during the extended term of a patent. It has been applied, however, by the Supreme Court to other cases, from which the limitations of the rule, so far as it relates to *changes in the construction* of a patented device, are to be determined.

In *Wilson vs. Simpson* (9 How., 109), a case still earlier than the case of *Chaffee vs. Belting Co.*, the Supreme Court decided that the purchaser of a planing machine had a right to replace the cutting knives, because of the temporary or perishable character of those parts of the machine which required replacement at least every sixty or ninety days, while the machine as a whole had a life of several years. This decision of the Supreme Court was based upon the theory that such a repair of the patented device was within the contemplation of the parties (the patentee and the purchaser) at the time of the sale of the machine, but that the right to make repairs did not extend to permanent parts of the machine or entitle the purchaser to reconstruct the machine in gross or as to any of its permanent parts.

In *Cotton Tie Co. vs. Simmons* (106 U. S., 89) a patent was before the Court which covered the combination of a buckle and band forming a tie for cotton bales. In releasing the cotton the band was cut without other injury either to the band or the buckle, and the defendant purchased the several bands and the

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buckles; joined the bands together, and resold the bands and buckles for cotton ties. This the Court held to be a reconstruction of the device not intended by the patentee, and constituting an infringment of the patent.

In *Morgan Envelope Co. vs. Albany Paper Co.*, 152 U. S., 425, the patent in question covered the combination of an oval roll of toilet paper and a fixture for supporting the roll and insuring the proper delivery of the paper. The defendant had sold such rolls of paper to users who had purchased rolls and fixtures from the patentee. This was decided not to be an infringement, because of the perishable character of the paper roll and the necessity for frequently renewing it to maintain the device as a whole in operation.

In *Davis Electrical Works vs. Edison Electric Light Co.*, 60 Fed. Rep., 276, the Circuit Court of Appeals for the First Circuit decided that the defendant infringed the patent on the Edison incandescent lamp by renewing the filament in the lamp, this decision being based upon the proposition that the filament was an important or vital feature of the patented combination, and that the lamp as constructed and sold was not designed to have the filament renewed.

Down to the decision of the Circuit Court of Appeals for this Circuit in *Thomson-Houston Co. vs. Kelsey Co.*, 75 Fed. Rep., 1005, no court, so far as we have been able to find, had attempted to give effect to the suggestion in *Chaffee vs. Belting Co.*, that the right to *improve* a patented article—*i. e.*, to replace an element of a patented combination not worn out or broken—without the consent of the patentee, also existed in the public. The patent in that case was that granted upon the invention of Van Depoele relating to overhead or trolley systems of electric railways. The claims covered the general combinations of such a system, "the important and distinctive part of the invention" being "the trailing arm, hinged and pivoted to the car, and moving laterally and vertically, with a contact device at its outer end, capable of being pressed upward, by a suitable

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tension device, into engagement with the under side of the conductor." In practice this trailing arm or trolley is connected with and supported upon the car by a base known as a "trolley stand." As the Court stated, no particular form of stand was included in the Van Depoele invention, since any one of a number of forms would answer the purpose. Apparently the stand was not stated specifically as an element in any of the claims of the Van Depoele patent. It was included only inferentially as a necessary connection between elements directly referred to. The stand was, therefore, not an important or vital element of the patented combinations. The defendant made a particular form of trolley stand which it sold to street-railway companies employing the general combination purchased from the patent-owner. From the opinion it appears that the sales made of these trolley stands by the defendant were to take the place of the complainant's trolley stands which had become broken, and also as a substitute for complainant's trolley stands in cases where a lower stand than the complainant's was required to enable the cars to run under low bridges crossing the track. The Court decided, regarding sales of the first kind, that the principle of permissible repair rather than of infringing reconstruction was applicable, because (p. 1009):

> "While it is not intended that a trolley stand should be broken, or should lose its useful capacity, either calamity may befall it; and the right to replace the injured part by a new stand, from any person who can supply the article, should be conceded by the owners of the patent."

The Court continued:

> "It is not intended to permit the unauthorized substitution of *the vital and distinctively new part* of an invention in place of one worn out by use * * * but *the trolley stand is not the vital element* of the invention, though a portion of it is an element of the combination. It is the means, and *in most cases the nonpatented means*, for there are numerous forms of these bases by which the pole is permitted to perform its functions."

Regarding sales of the second character, the Court said (p. 1010):

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"A refusal to permit such a substitution is equivalent to a declaration that the street railway company cannot be permitted to improve its stands, except by the consent of the complainant."

a position which the Court decided was not tenable. The Court thereupon directed that the injunction order granted by the Circuit Court should be modified by adding the following words :

"It is not intended to enjoin the defendant against the sale of the trolley stands by way of replacement of broken stands, or stands worn by use, or substitution for trolley stands previously sold by the complainant to purchasers from it, *but this permission does not give authority to reconstruct or rebuild a combination which has been sold by the complainant.*"

In this careful modification of the injunction order, the Court recognized the binding force of the principle that a defendant cannot "reconstruct or rebuild a combination" without becoming an infringer of the patent. The law as to this is not changed, and the decisions of the Courts in the Cotton Tie case and the Electric Lamp case are recognized as establishing a sound proposition of law applicable to the facts of those cases. The effect of the decision in the Trolley Base case is simply to determine that *under the facts of that case,* what the defendant did was not a reconstruction or rebuilding, but was simply the replacement of a minor and unimportant part in the combination. The Court evidently thought that a replacement which would be good for purposes of *repair*, would also be good for purposes of *improvement.* It simply added to the authorities on the question of permissible repair the further authority that a user may, without infringement, replace a similarly minor and unimportant part if his object is that of improving the device rather than that of repairing it. In other words, the Court puts a right to replace an element of a combination upon the broader ground of the minor or unimportant character of that element in the combination, and this is as far as the case goes.

The case at bar is evidently not the Trolley Base case, because it cannot be said that the defendant here

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replaces only a minor and unimportant part of the Edison reproducer or recorder. He, in fact, replaces the essential and vital elements of the device, and does what must be regarded as a reconstruction or rebuilding of the structure.

COMPLAINANT'S PROPOSITIONS.

The defendant has infringed the Edison Patents in suit :

1. By reconstructing the Edison reproducers by the substitution of new parts for important and vital elements of the combinations patented ; and

2. By supplying devices separately patented.

The first proposition above stated, if found to be true with respect to the character of defendant's operations, will bring this case under the general rule as to infringement by reconstruction, and take it outside of the rule as to permissible replacement of an unimportant part stated in the Trolley Base case.

The second proposition above stated is dependent upon a different principle of law—namely, that if the devices which a defendant supplies to replace parts of a patented combination are themselves separately patented as devices or sub-combinations, the defendant cannot escape the charge of infringement on the theory that his devices were supplied either for the purpose of repair or improvement.

In *Aiken vs. Manchester Print Works*, 2 Cliff., 435, Mr. Justice CLIFFORD held that the purchase of a knitting machine and the needles accompanying the same, did not confer upon the purchaser any right, after the needles were worn out and became useless, to manufacture other needles and use them in the same

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knitting machine, *because the needles were the subject of a separate patent.*

In *Wilson vs. Simpson (supra)*, the Supreme Court recognized this distinction in the following language (9 How., p. 123) :

> " Of course when we speak of the right to restore a part of a deficient combination we mean the part of one entirely original, and not of any other patented thing which has been introduced into it, to aid its intended performance."

In *Morgan Envelope Co. vs. Albany Paper Co. (supra)*, the Supreme Court referred with approval to *Aiken vs. Manchester Print Works*, and distinguished it from *Wilson vs. Simpson*, suggesting that if the paper roll in the case before it had been covered by a separate valid patent, the sale of such rolls by the defendant, even to purchasers of the combination of roll and fixture from the complainant, would have constituted an infringement.

See, also, *Singer Co. vs. Springfield Co.*, 34 Fed. Rep., 393.

Considering, first, patent in suit No. 397,280, it is evident, from the reading of the specification and the claims asserted to be infringed (claims 1, 2, 3, 8 and 10), that the vital idea of the invention is in so connecting the point-carrying arm with the diaphragm that the point is capable of movement towards and away from the diaphragm without moving the diaphragm and independent of the movement of the diaphragm, and in so retarding this independent movement that for relatively slow movements, such as the eccentricities of the record cylinder, the point will move independently of the diaphragm, while for rapid movements, such as are produced by irregularities of the sound record, the inertia or fanlike action, or both, of the retarding device will cause the movements to be transmitted directly from the point to the diaphragm, the same as if the point were rigidly connected with the diaphragm. The important, vital and novel elements of the combinations covered by the claims are, referring to the illustrations of Edison and Fletcher

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reproducers before given, the point-carrying lever (part 8), the weight and associated parts (parts 5, 6 and 7), the connections between the arm and the diaphragm (parts 11 and 12), and the connection between the arm and the weight (part 9). These are the important elements, because they all contribute essentially and vitally to secure the result which the patent aims at. The defendant, in his operations, supplied new parts for six of these seven parts—namely, parts 6, 7, 8, 9, 11 and 12, and as to the remaining part (the weight 5), he used in most cases the Edison weight simply as raw material from which to make his own weight, and in other cases actually supplied a weight of his own manufacture; in no case did he use the Edison weight unchanged, or otherwise than as raw material from which to make his own weight. Surely the Trolley Base case, in which only the replacement of a *single* minor and unimportant part, a mere connection, was held to be permissible, cannot be taken as authority for the replacement of *practically all* the important and vital elements of the patented combination. The infringement of this patent must be found under the first of the two propositions above stated.

Considering the next patent in order of date, No. 430,278, the question of infringement as to some of the claims must be referred to the first proposition, and as to other claims the second proposition is applicable. This makes necessary a separate consideration of the several claims asserted to be infringed (claims 9, 11, 12, 15, 16, 17, 18, 20, 29 and 31).

Taking up these claims in their order, claim 9 covers the combination of the reproducing point having a shank or extension and a sleeve for holding the same. The combination as embodied in the Edison reproducer consists of the sleeve on the end of the sapphire arm, and of the reproducing point having a shank which enters this sleeve. Certainly both of these features are the vital and important features of the combination claimed, because they are both stated specifically in the claim. In the defendant's re-

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producer, the sapphire arm (part 8), which the defendant supplied in every case, carries the sleeve. The sapphire (part 10) of defendant's reproducer has a shank or extension which enters this sleeve (R., fol. 176), and in some cases the defendant supplied this point as well as the sleeve. In other words, the defendant supplied both the important elements of the combination in some cases, and one of such elements in other cases, and in both classes of cases must be held an infringer under the first proposition.

Claim 11 covers a separate device, namely the reproducing point whose bearing surface is the surface of a portion of a sphere, while claim 12 covers a spherical reproducing point. These claims, covering a separately patented device which enters into the general combination of the Edison reproducer, were infringed under the second proposition in the cases where the defendant supplied the sapphire in his reconstructing operations.

Claim 15 covers a reproducing point pivoted so as to have a lateral movement, in combination with a weight bearing thereon. In the case of the Edison reproducer, the lateral movement is provided at the arm-pivot 9, while in the case of the Fletcher reproducer the lateral movement is provided at the weight hinge 6. This provision of the lateral movement and the weight are the two essentials of the combination. The defendant in all instances supplied the part 6 which permits the lateral movement, thus supplying an important, vital and novel element of the combination. He also, in some cases, supplied the weight (part 5), and in all other cases reconstructed the Edison weight, using it simply as raw material. The infringement of this claim must be found under the first proposition above stated.

Claim 16 covers the combination of the reproducing point having a bearing surface which is the surface of a portion of a sphere and pivoted so as to have a lateral movement, and a weight bearing thereon. The vital elements of the combination are evidently the

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peculiar reproducing point, which the defendant supplied in some cases ; the provision of the lateral movement, the parts for which the defendant supplied in all cases ; and the weight, which the defendant supplied in some cases, and reconstructed, as before explained, in other cases. Infringement of this claim must be found under the first proposition above stated.

Claim 17 covers a reproducing point having a bearing surface which is the surface of a portion of a sphere and pivoted so as to have a lateral movement. The vital elements of the combination are the peculiar reproducing point, which the defendant supplied in some cases, and the means for allowing the lateral movement, which the defendant supplied in all cases. Infrigement of this claim must be found under the first proposition above stated.

The 18th claim covers a laterally rocking spherical reproducing point in combination with a weight bearing thereon. The vital elements of the combination are the point of peculiar form, the provision for a laterally rocking movement, and the weight. The defendant supplied the point of peculiar form in some cases, the means for permitting the laterally rocking motion in all cases, a new weight in some cases, and a reconstructed weight in other cases. Infringement of this claim must be found under the first proposition above stated.

Claim 20 covers the combination of the reproducing point, the lever carrying the same and connected with the diaphragm, the hinged plate, and the hinge connection between said lever and said plate. The vital elements of this combination are, evidently, the reproducing point, which the defendant supplied in some cases ; the lever or arm carrying the same, which the defendant supplied in all cases ; the connections between that lever and the diaphragm, which the defendant supplied in all cases ; the hinged plate (namely, the weight), which the defendant supplied new in some cases, and reconstructed in other cases, and the hinge connection between the lever and plate, which the defendant supplied in all cases. Infringement of this

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claim must be found under the first proposition above stated.

Claim 29 covers the combination of the diaphragm, a lever connected therewith, a sleeve carried by said lever, and a reproducing point removably held in said sleeve. The vital elements of this combination are the diaphragm, which the defendant supplied in some cases ; the lever or sapphire arm, which the defendant supplied in all cases ; the sleeve carried by said lever or arm, which the defendant supplied in all cases ; the reproducing point, which the defendant supplied in some cases, and the removable securing of such reproducing point in the sleeve of the lever or arm, which the defendant supplied in all cases. Infringement of this claim must be found under the first proposition above stated.

Claim 31 covers the combination of the reproducing point, the holding sleeve, and a cement, which will be softened by heat, for holding the point in the sleeve. The vital elements in the combination are the point, which the defendant supplied in some cases ; the holding sleeve, which the defendant supplied in all cases, and the cement, which the defendant supplied in all cases. Infringement of this claim must be found under the first proposition above stated.

Concerning the last of the three patents in suit, No. 484,584, the essential feature of the claims of this patent is the jewel reproducer (claim 1), the rounded jewel reproducer (claim 2), or the reproducer consisting of a jewel not affected by the chemicals or chemical action of the wax-like material of the phonogram blank (claim 3). This should be regarded as a separately patented article covering the sapphire (part 10) of the Edison and Fletcher reproducers. In the instances where this sapphire was supplied by the defendant, he undoubtedly infringed the claims of this patent under the second proposition above stated.

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CONCLUSION.

The injury to the complainant by the defendant's operations is obvious. The "fletcherizing" of every old Edison reproducer and its resale cause the complainant to lose the sale of a new reproducer, and, as is evident, the marketing by the complainant of improved forms of reproducers will be seriously hampered if persons situated like the defendant are permitted to take old-style devices and reconstruct them into more improved forms. The defendant should exercise his ingenuity in the direction of inventing a reproducer which is not an infringement of the essential features of the Edison patents. His standing with the Court would then be unquestionable. But the effort to market his infringing reproducer by placing its essential parts in the shell of an Edison reproducer should not be countenanced.

RICHARD N. DYER,
Of Counsel for Complainant.

New York, February 20, 1902.

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